MYTH OR SCIENCE?
POSITIVE PERSPECTIVES ON DEPRESSION

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Critical Appraisal

German philosopher Friedrich Nietzsche wrote the famous words: "What does not kill you makes you stronger" [1]. This quote is often used as an ironic expression nowadays, but it can also be used in a positive way; to express determination and optimism in the face of adversity. Some experts have used this expression to describe overcoming depression. Professor Jerome Wakefield from New York University is one of these experts. In his book *The loss of sadness: How Psychiatry transformed normal sorrow into depressive illness*, he states that if we embrace depression, by not just seeing it as a horrible disease, it can motivate us to change our lives for the better [2]. His opinion is often seen as controversial, and has even been described as offensive, as people who have suffered from this disease can tell you how frightening and disabling it can be. Others feel supported by his words, as it offers light at the end of the tunnel [3]. The question remains, is there truth to Wakefield's statement? Are there upsides to feeling down, either on short- or long-term.

Introduction

Everyone has experienced sadness. Most often this sadness is considered to be part of life. Some individuals, however, experience long periods of intense sadness, which is not in proportion to the cause. This pathological sadness is called a depressive symptom [4]. In combination with the other necessary criteria as defined by the DSM-5 (Diagnostic and Statistical Manual of Mental Disorders), this is known as a depressive disorder, hereafter refered to as depression (see table 1) [6]. Depression is a relatively common disorder with a lifetime prevalence of 19%, making it one of the most prevalent diseases in the Netherlands [5]. The prevalence of depression is still increasing amongst all age groups. In children and adolescents, it has almost doubled in the past five years [7]. Half of the individuals who suffered from depression have one or multiple relapses, which increases the prevalence even more [4]. Additionally, depression is both a highly prevalent disorder and a disease with significant consequences. The World Health Organization (WHO) has ranked depression as the leading cause of disability worldwide in 2017, due to the considerable effects on well-being and daily functioning [8]. This means that the disability caused by this disorder is higher than those of cardiovascular disease or cancer, which are also on the top of the WHO disability list. Depression is also the most important risk factor for suicide and suicide attempts [9].

It is clear that depression forms an important problem in our society. Therefore, it is often considered to only have negative consequences for the patients suffering from it. However, there are experts who have a different opinion. These supporters do not only entail scientists, but also individuals who are suffering or have suffered from depression themselves [10]. In this article, we will try to explain parts of the complex aetiology of depression and outline theories and evidence on the benefits of depression to find out if there are upsides to feeling down [2, 11].

The depressed brain

In order to understand the possible benefits of depression, it is important to understand why and how we currently think depression occurs. Studies have shown that both family factors and environmental factors play an important role in the aetiology. The balance between the two is different for each person, but in most cases they are both disrupted [4]. Despite decades of research, the neural basis for depression is still not completely understood. This is mostly because of the complexities in examining the human brain and heterogeneity in the presentation of depression [4]. Many regions in the brain and of the hormonal system have been associated with this disease (figure 1) [12]. An example of a structure that is often linked to depression is the hypothalamus-pituitary-adrenal axis, which plays an important role in the stress response, and the regions that produce the monoamine neurotransmitters noradrenaline, dopamine and serotonin. Certain regions also seem to be more symptom-specific than disease specific. The prefrontal cortex is, for example, associated with anhedonia, which means that the person is no longer able to experience joy, while the locus coeruleus (which produces noradrenaline) is linked to attention and concentration deficiencies [4, 12]. Dr. Pandya, a well-established psychiatrist, mapped all regions that are currently linked to depression and concluded that this disorder seems to lie in many brain regions as well as nowhere in particular (figure 1)[12]. To improve the diagnosis and treatment of depression, a better understanding of the neuro- and pathophysiological basis of this debilitating disease is essential [11]. The fast-paced development of brain imaging studies, such as functional magnetic resonance imaging (fMRI), which measures brain activity by detecting changes in blood flow, will hopefully help achieve this in the future [12]. However, with so much yet unsolved about the pathophysiology of depression and with that many related regions, the question is raised if there are indeed some positive changes related to this disease.

Table 1: DSM-5 criteria for major depressive disorder [5].

DSM-5 criteria for major depressive disorder
At least five of the following symptoms that cause clinically significant distress or impairment in social, occupational, or other important areas of functioning
At least one of the symptoms is 1) depressed mood or 2) loss of interest or pleasure
Symptoms must be present almost every day for at least two weeks
Symptoms: 1. Depressed mood most of the day 2. Diminished interest or pleasure in all or most activities 3. Significant unintentional weight loss or gain 4. Insomnia or sleeping too much 5. Agitation or psychomotor retardation noticed by others 6. Fatigue or loss of energy 7. Feelings of worthlessness or excessive guilt 8. Diminished ability to think or concentrate, or indecisiveness 9. Recurrent thoughts of death
Diagnosis of recurrent major depressive disorder requires at least two months between two episodes in which criteria are not met

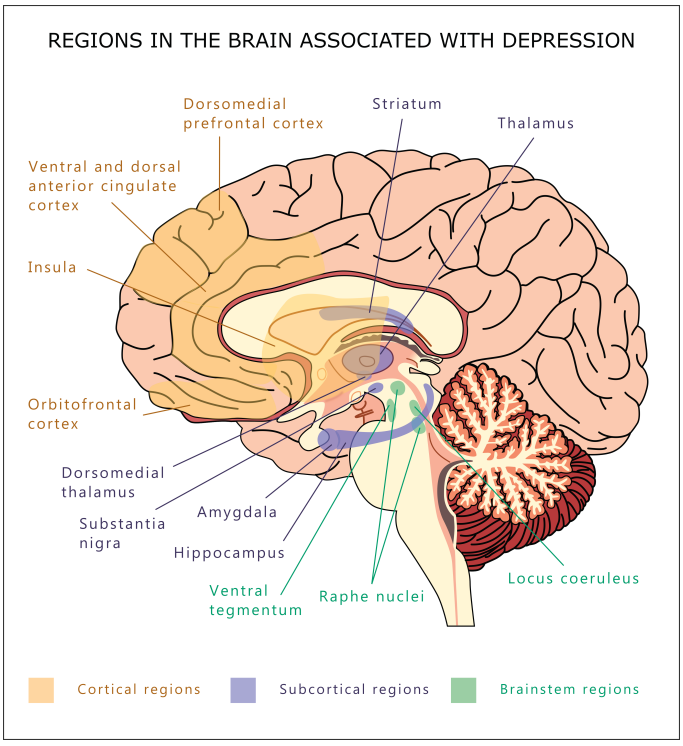

Figure 1: Regions in the brain associated with depression.
Various cordial, subcortical and brainstem regionen of the brain which are previously linked to depression.

Does depression actually exist?

Besides the physiological and molecular mechanisms underlying depression, which are not fully understood, the very existence of depression and where and when it starts is also debatable. Psychiatrist Neel Burton explains that the clinical diagnosis for depression is based on subjective measurements and not on a physical substrate or clinical tests. He, therefore, argues that proving its very existence is a difficult task as the diagnosis is based on a patient's symptoms [13]. The criteria for depression are made to fit to the experienced symptoms of patients and as symptoms would change over time, so would the diagnostic criteria. This will lead to always providing patients with a positive diagnosis and creating an endless cycle of disease [13]. Psychologists Jerome Wakefield and Allan Horwitz also believe that the ongoing rise in the prevalence of depression is at least partially caused by the unclear distinction between pathological sadness, known as depression, and just normal or physiological sadness. They do not question the seriousness of moderate and especially severe depression. However, Wakefield and Horwitz are not sure if the same goes for mild depression. They state that this subtype of depression cannot be unambiguously distinguished from normal sadness, which, as the name implies, is a part of life [2, 3]. Interestingly enough, some linguistic communities, like the Punjabi, an ethnic group associated with the Punjab region in South Asia, do not have a word or even a concept to talk or think about 'depression' [13].

The function of depression

Most hypotheses agree that depression likely evolved as an adaptation to help navigate adverse situations. This is one of the positives about depression and depressive symptoms, as explained by dr. Thomson [14]. He suggests that depression lets your body know that there is a big problem at hand. It hereby forces you to focus on that problem and solve it. Thomson explains: "In that regard, depression is similar to pain which signals your brain that some part of you needs help" [14, 15]. One of the ways that depression might increase your ability to solve problems is by causing an almost obsessive rumination toward particular problems in your life. This causes the mind to adapt itself to focus on a single or possibly a multitude of problems that need to be prioritised first before taking on new challenges. The analytical rumination hypothesis argues that the symptoms of depression, such as anhedonia, results in distraction-resistant and persistent cognitive analysis, which can help individuals resolve difficult challenges in their lives [14, 15]. These in-depth analyses lead to impairment and disengagement from everyday life and are, therefore, commonly considered maladaptive in our rushed society. Nevertheless, they might be quite functional if not taken too far. This point of view is supported by the evidence that indicates that a depressed mood is associated with improved accuracy on complex tasks, increased cognitive processing and enhanced detail-oriented judgement on tasks that require deliberate information processing [16]. Research indeed suggests that those with depression make more informed decisions [17]. This positive function of depression applies in particular to mild forms of the disorder. When the severity of depression increases and/or when someone has experienced multiple depressive episodes, the disease seems to become more autonomous [18].

The fundamental attribution error

People who are being or have been depressed will often tell you that they feel less judgemental about the actions of others. There is scientific evidence that supports this claim. Forgas, a social psychologist, has done multiple studies on the fundamental attribution error (FAE), which is a psychological concept that describes the tendency to judge other individuals that are in an unpleasant situation in a negative way and attribute their behaviour to internal qualities rather than being more understanding and empathetic of their hardships [19]. He performed various experiments to investigate the possible difference in FAE between people in a sad mood and people who felt happy [19]. In all experiments, happy people judged the actions of others more often on salient and readily available information about the actor. In contrast, people in a bad mood would most often become aware of external constraints and modify their first assumptions accordingly. From these experiments, the researchers concluded that a happy mood might increase the FAE, while a sad mood decreased it [19].

Decision-making and risk aversion

Depression is associated with behavioural avoidance. This avoidance is often seen as negative in potentially rewarding situations. It is also thought that depressed individuals respond more to punishment than reward in contrast to their non-depressed counterparts [17]. Depressed individuals are, therefore, more likely to avoid unfavourable risky behaviour and learn faster from trial and error than other individuals [17]. Psychologist Moria Smoski tested this theory by using the Iowa Gambling Test [17]. In this test, there are two card decks an individual can choose from each round. The first deck involves high rewards and similarly high penalties, with an unfavourable reward-to-punishment ratio. The second deck involves low rewards and low penalties, with a favourable reward-to-punishment ratio. In order to succeed the task, the participant should decide, through trial and error, to choose the second deck over the first. Depressive participants had more money in total at the end of the game, because they were initially less likely to choose the first desk. However, they did not seem to learn faster from previous mistakes [17]. It thus appears that depressed individuals are not necessarily faster learners than their non-depressed counterparts, but they do make safer and less impulsive choices. This quality has been important in human evolution, since we have always lived in groups. The group as a whole profits from the majority being cautious, rather than adventurous. Nowadays it is less evident whether being cautious is still an advantage [17].

Depression realism

One important advantage of feeling down is that it has been linked to a better perception of reality in a number of studies. When the average person is asked to judge him- or herself on numerous aspects of life, such as their intelligence or their parenting qualities, they score far above average. This contradiction in itself is proof that people overestimate themselves [20]. They also overestimate their children and their chance to win the lottery [20]. Depressive realism is the effect that those who feel down sometimes have a better perception of reality than others [20]. A better perception of reality can result in people with depressive symptoms making better and more rational decisions, whereas others might make mistakes due to their overestimation of either chances or facts.

Empathy in depression

It is thought that depression changes someone's empathy, but it is not exactly known in what way. Many people who have gone through depression believe that they became more empathetic afterwards. Marjorie Wallace, founder of SANE (a mental health charity) and depression expert through experience, is one of them [11]. It is hypothesised by Thoma *et al*. that depressed individuals could not detach the suffering of others from their own suffering and would, therefore, be less empathetic [21]. In this study of Thoma *et al*. it was concluded that depressed individuals indeed experienced more personal distress. However, they also found that their affective empathy was actually higher than those of controls, meaning that depressed individuals were more capable of recognising emotions of others [21]. A recent study by Tanako *et al*. that used fMRI, found a link between depression and individuals who tend to be more self-sacrificing and willing to promote equity [22].

Discussion

When looking at the positive aspects of depression we stumbled upon a variety of problems. Due to the social stigma on depression, and the controversial view upon the matter, little research has been done on the positive effects of this disorder. When one critically looks at the research that has been done on depression in general, positive and surprising results can often be found. This is, however, rarely reported or not mentioned in the discussion of the article, making it hard to draw conclusions. Moreover, the little research that has been done on this topic has proven itself to be difficult for various reasons. First of all, the diagnosis of depression is largely subjective, making it difficult to experiment on a distinct group of individuals with a depression and a distinct group of individuals without one. Secondly, a good distinction between the severities of depression is often not made. Individuals who suffer from mild depression and those who suffer from severe and crippling depression are often put in the same group. Both of these limitations most likely cause a diminishing in the positive effects of depressive symptoms. Furthermore, it is difficult to objectively measure psychological effects. Most often, researchers are dependent on self-report questionnaires and experiments that do not always correlate well with the real world. The objectivity of these methods are questionable and thus, so are the conclusions of these studies. The development of new medical imaging techniques, such as fMRI, could possibly help solve these hardships. However, since depression does not simply lie in one or a few particular regions in the brain, this is a difficult, if not impossible, task to resolve.

Conclusions

In this article, we have tried to shed a light on a few of the positive aspects of depression. Depression can cause individuals to be less judgemental of others, can lead to safer and less impulsive decisions, can make them more realistic about themselves and more empathetic towards others. These positive aspects are more often linked to mild depression and first episodes of the disorder, rather than severe and recurrent depression. Although the possible benefits of depression may seem small compared to the disadvantages of this disabling disorder, they do exist. However, we urge you to overthink whether or not we should also label depressive symptoms differently. In our hectic daily life, there is not always room for sadness. This emotion is and will always be part of our lives and if it were to be embraced by us, rather than pushed away, it could possibly help us move forward.

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