Journal of Academic Inquiry and Knowledge Volume 2024 (4) 119-129
ISBN 979-8-9888908-2-9

The Effects of Food on Mental Health

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The relationship between food and physical health is a widely discussed topic, especially when obesity rates are increasing, and cardiovascular disease is the leading cause of death worldwide. However, the significant effect that food has on mental health is overlooked even as mental disorders continue to increase. While there have been many methods of treatment and prevention for mental health issues, such as psychotherapy, eating a healthy, nutrient-filled diet may be one of the simplest ways of alleviating mental disorder symptoms. Recent studies show that there is a relationship between nutrition and mental health and that diet is linked to depression (Grasses, 2019). Food consumption can affect our mental health in several ways. It is crucial to determine what foods should and should not be included in our diet for optimum mental health.

Background

Over the past few decades, eating patterns worldwide have worsened. Unhealthy diet patterns worldwide have severely affected the population's overall health. The intake of processed food, including trans-fat, high sodium intake, and sugar-sweetened beverages (SSB), has been skyrocketing (Gorski & Roberto, 2015) to the detriment of the population's health. This has caused a higher rate of mental health issues by causing inflammation in people's minds.

Inflammation in the mind, also known as encephalitis, is what causes the brain to swell. This can occur when people eat overly processed food. Studies have shown links between pro-inflammatory foods such as highly processed food like packaged meat and soda and certain mental disorders, while anti-inflammatory foods such as fresh fruits and vegetables are linked to happiness and better mood (Beatriz & Nemeroff, 2010). Consuming more fresh foods can lessen the severity of depression and reduce symptoms of other proinflammatory-caused illnesses. There are demonstrable links between nutrition in fresh, whole foods intake and the measure of happiness (Lensai, 2016). They are also linked to lowering oxidative stress (Oluwole, 2019). Pro-inflammatory diets have been linked to brain inflammation, leading to mental health issues (PHN, 2020).

A dietary inflammatory index (DII) assesses a diet and health outcomes linked to inflammation and gives a score (Scheiber & Mank, 2019). Higher scores are pro-inflammatory, and lower scores are anti-inflammatory (Hebert, 2019). Several studies report that a high DII and pro-inflammatory diet are linked to a greater chance of developing anxiety, depression, and schizophrenia (Grajek, 2022).

Overconsumption of Processed Food and the Rise of Mental Health Disorders

Mental health is becoming a significant problem; for example, depression is the leading cause of disability, and there is a dramatic increase in anxiety levels globally (WHO, 2017). Food is one variable an individual can control among the several factors that may contribute to this matter. People are constantly exposed to discretionary food; junk food consumption is widespread, and many struggle to maintain a well-balanced and nutritional diet.

Guiding Questions:

1. What are the harmful effects of processed food on mental health?

2. What are the positive effects of essential nutrition on mental health?

Inflammation

Multiple studies have shown that inflammation caused by processed food can lead to mental disorders such as depression, stress, anxiety, and schizophrenia (Beatriz & Nemeroff, 2010). It is feasible to call depression an inflammatory disease. There is evidence that peripheral inflammation plays a critical role in developing mental health issues such as depression, anxiety, and mood disorders. Several dysregulations of the immune system and *cytokines*, protein molecules that regulate immune responses, impact the brain (Beatriz & Nemeroff, 2010). The pro-inflammatory cytokines were found to be especially associated with these issues. Through vagal and humoral routes, these pro-inflammatory cytokines such as necrosis factor (TNF)-alpha, C-reactive protein (CRP), Interleukin (IL)-1 and IL- 6 can impact the brain by causing a "sickness-response." They also alter the neurotransmitter system, such as *dopamine*, a hormone that releases feelings of pleasure and affects emotion and behavior, and glutamate, which plays a significant role in learning and memory (Beatriz & Nemeroff, 2010).

A systemic inflammatory response alters brain function when consuming too much pro-inflammatory food (Santoft,2020). When inflammation occurs, the body tries to restore normal function and promote recovery. However, these responses may result in psychiatric disorders, which include symptoms of uncomfortable fatigue, withdrawal from social activity, and depression. Therefore, people who are more exposed to inflammatory responses and high cytokine levels are more prone to developing mental illnesses (Santoft, 2020).

There is evidence of the connection between inflammatory foods and deteriorating mental health. A meta-analysis was done on 1579 articles by the National Library of Medicine, including PubMed, Web of Science, and Embase (NLH,2022). In the final analysis, PubMed

collected 17 studies that explored the relationship between DII and psychiatric disorders. This study included 157,409 subjects and showed the dietary inflammatory potential effects on depression (NLH, 2022). Four of these studies reported effects on anxiety. The results showed that the risk of depression and anxiety in the pro-inflammatory diet group was higher than in the anti-inflammatory diet group, demonstrating just how big of an impact inflammation from food has on mental health (NLH, 2022). They found that there is evidence to show that consumption of highly inflammatory foods significantly increases the risk of depression and anxiety. A similar study done at Isfahan University reported similar results. In a cross-sectional survey of 3.363 people, a mental health disorder profile score was used to calculate the mental health disorder profile. Dietary intakes were assessed, and everyone received a score based on their DII. Multinomial logistic regression was used to determine the highest tertile, a type of quantile calculated from the lowest to the highest data, which, in this case, the highest tertile contains the most variables. In both analyses by sex, similar results showed that the participants with the highest levels of DII had a higher risk of being in the top tertile of mental health disorders (Haghighatdoost, 2019).

Food That Should Be Avoided

Certain foods cause inflammation. Pro-inflammatory foods include processed food, red meat, fried food, low-fiber food, and foods that contain high amounts of sodium, processed sugar, refined carbohydrates, and refined starch (Oluwole, 2019). Common pro-inflammatory foods include sugary beverages; commercial baked goods like cakes, cookies, pasta, and bread (Oluwole, 2019); processed meat, including sausage, hot dogs, bacon, and lunch meat; and deep-fried items such as French fries, donuts, and churros (Oluwole, 2019). These foods cause the bacteria in the gut to be altered, which can affect the immune system, leading to inflammation

(Vissers, 2022). Overly consuming saturated fats may interfere with the body's natural fat ratio, and excessive refined sugars can cause blood sugar to spike (McCallum, 2022). Limiting the intake of these foods can significantly reduce the severity of mental health issues (NLH 2020).

Anti-Inflammatory Food and Essential Nutrition

Depression, schizophrenia, anxiety, and stress are all part of mental illnesses that plague thousands of people every day. It is the production of dopamine, serotonin, endorphins, choline, norepinephrine, and other neurotransmitters (body chemical messengers) in the brain that produces mental illness. The brain relies on the nutrients in certain foods to stay strong and defend itself. Healthy nutrition is the building block of a healthy mind.

Anti-inflammatory foods fight inflammation (Magesh, 2022), reduce stress, and positively impact mental health. Research has indicated that an anti-inflammatory diet has potential therapeutic applications to treat inflammatory diseases. Certain foods have anti-inflammatory properties. These foods contain the essential nutrients, fiber, vitamins (A, B, C, D, K, complex), minerals (calcium, iron, magnesium, zinc), phytonutrients, phytochemicals, fatty acids, amino acids, and antioxidants needed for a healthy mind (Oluwole, 2019). These nutrients can be found in fruits, whole grains, berries and nuts, fatty fish, and green leaves. These foods provide antioxidant polyphenols, bioflavonoids, curcuminoids, phytosterol, and other valuable antioxidants to reduce inflammation (Gupta, 2018). For example, some vegetables such as broccoli, spinach, kale, onions, and peppers have ample amounts of Vitamin E and K, which are high in inflammation-fighting carotenoids. Polyphenols, which reduce the production of free radicals to fight inflammation, can be found in herbs, green tea, turmeric, grapes, and apples (Gupta, 2018). Oily fish such as wild salmon and tuna may be among the best anti-inflammatory foods to defend against mental disorders as they contain omega-3 fatty acids essential for the

brain (Gupta, 2018).

Omega-3 fatty acids have antidepressant effects, and omega-3 dietary supplements have been linked to more positive behavioral outcomes. Asparagus, avocados, cabbage, beans, and peas are associated with a lower risk of anxiety and depression as they contain folic acid. Folic acid reduces homocysteine, which is associated with depression (Oluwole, 2019). Probiotics found in fermented foods also offer protection from mental disorders.

Discussion

Many studies exploring the effects of food on mental wellness have concluded that an anti-inflammatory diet reduces mental illness symptoms, and a pro-inflammatory diet results in greater vulnerability to depression and stress (Gupta, 2018). These results support the hypothesis that food is connected to our mental well-being and can influence how the brain works. However, a cautionary note is in order as there is little known about the neurobiology of mental disorders. More in-depth research is needed regarding what mental disorders are linked to diet and how universal these links are. However, existing studies suggest a strong relationship between food and mental health.

Anti-inflammatory food and pro-inflammatory foods have critical effects on mental health. Fresh foods like fruits and vegetables have been shown to decrease the chances of developing mental health disorders. In contrast, pro-inflammatory foods like processed food have been linked to depression and other mental health disorders. Anti-inflammatory foods trigger inflammation in the brain, and pro-inflammatory foods are critical in fighting inflammation.

Conclusion

This paper examines the positive and negative effects food has on mental health. One's

diet needs to be taken seriously, especially when increasingly available over-processed food is associated with rising mental health issues such as depression and anxiety. A change in poor mood may be the first sign of nutritional deficiency (Magesh, 2022). It could be one way to treat certain mental illnesses.

There is ample evidence that people need to reduce their fast and junk food intake and rethink their food choices. Incorporating nutrient-dense foods such as fruits and vegetables can significantly improve one's mental health and concentration. Finally, this topic is something that should be heavily discussed much more often, as it concerns one of the leading causes of disabilities worldwide. The causes and prevention are small and not discussed enough for such a big issue. We need to consider the effect food has on our lives more seriously to lessen the seriousness of this worldwide issue. This research can be helpful to explore possible interventions for mental disorders around the world.

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