

COMMENTARY

How Diet Influences Anxiety

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Welcome to the Brain Food blog for Medscape Psychiatry. I am Dr Drew Ramsey, assistant clinical professor of psychiatry at Columbia University in New York City.

Last month, we reviewed the literature on how diet and nutrition can be used to augment our current treatments for depression. Today, I want to discuss how nutritional psychiatry—the use of nutrition and food—influences anxiety disorders.

Anxiety disorders are the most commonly diagnosed mental health disorder. Of note, we do not have the same robust set of data that we have with depression. There are no randomized controlled trials that look at the effects of foods, nutrition, or specific nutritional supplements on anxiety disorders in general or specific anxiety disorders.

In this video blog, I will go over the growing and quite interesting data that do exist. Then I will talk about how we use food to help patients with anxiety disorders in our clinic in New York City.

First, the Data

In 2009, data about nutrition and anxiety emerged from Felice Jacka's group, which looked at the Hordaland data set, a large epidemiologic data set in Scandinavia.^[1,2] There were two notable findings. The first was that overall dietary pattern does correlate with anxiety:

Specifically, increased consumption of Western foods, or a more modern dietary pattern, correlated with an elevated risk for anxiety disorder by about 25%-29%.^[1]

In addition, Dr Jacka and her group found a correlation between anxiety and the nutrient choline.^[2] Choline is a B-like vitamin. It is very similar to folate, which is used in the methylation cycle. Patients who were in the lowest tertile of choline consumption had about 33% higher risk of having anxiety disorder. Choline is primarily found in eggs and tofu, but also in most meats.

Fermented Foods

Moving beyond the epidemiologic data, studies of a few specific nutrients and foods grabbed my attention. The first are fermented foods. As we have begun to think more about the gut/brain connection and the influence of the microbiome on our mental states, the use of fermented foods in patients with anxiety have become a subject of interest.

A 2017 review^[3] focused primarily on depression; however, several of the trials included in the article looked at anxiety rating scales and subscales. The results were mixed, but some studies found positive effects of probiotics. For example, a 2011 assessment of two strains of bacteria in healthy volunteers^[4] found that on formal rating scales, anxiety ratings went down following a 30-day trial with the probiotic, similar to the clinical trial that was positive for the treatment of depression.^[5]

In 2013, a trial by researchers from the University of California, Los Angeles, and France looked at fermented milk products,^[6] such as kefir and yogurt. This trial used functional MRI to compare individuals who ingested the fermented dairy product on a daily basis with control participants. The study found a significant influence of the fermented foods on the brain circuitry. The investigators hypothesized that fermented foods can alter some of the circuitry by which we process somatic senses and emotions. Potentially, this may be quite useful to our patients with anxiety.

A 2015 cross-sectional study looked at neuroticism, fermented foods, and social anxiety.^[7] This very interesting trial used an interaction model to show that individuals who have higher neuroticism but ate more fermented foods reported less social anxiety.

All of this together seems to indicate that fermented foods may be something to consider offering your patients with anxiety. We are using fermented foods in our clinic to help increase diversity of the microbiome, and also to enrich the microbiome with more of these "good bugs," as we call them—bacteria that seem to influence anxiety and mental health circuitry.

Omega-3 Fats

Another nutrient that always stands out when I think about food and mental health are the long-chain omega-3 fats. A 2009 review described some of the data that existed at that time, but really did not find a lot.^[8] There was still a lack of experimental trials, which continues to be the case today.

However, a 2011 trial^[9] looked at medical students and their stressors around test time. The students took about 2.5 g of long-chain omega-3 fats, primarily a very heavily weighted eicosapentaenoic acid (EPA) formulation with about 2 g of EPA and 0.5 g of docosahexaenoic acid. The study found that compared with baseline Beck Anxiety Inventory scale scores, the medical students had a roughly 20% lower level of anxiety after taking the omega-3 supplement. The researchers also looked at lipopolysaccharide-induced interleukin-6 levels and found that those were also significantly reduced.

Thus, omega-3 fats may have a therapeutic role to play. In nutritional psychiatry, that translates to encouraging our patients to eat more fatty fish and more bivalves as one way to take in more of those long-chain omega-3 fats.

Gluten and Sugar

A Scandinavian trial^[10] followed 35 patients with celiac disease for 1 year after the patients were placed on a gluten-free diet. At baseline, approximately 72% of these individuals had significant levels of anxiety, compared with 24% of 59 healthy controls. Over the year, the percentage of patients eating a gluten-free diet who reported significant anxiety went down to about 25%, with no significant change in the control group. It was a robust finding. The gluten-free diet did not improve the depressive symptoms in the patients with celiac disease, however. This is an interesting finding: A gluten-free diet can improve anxiety, but not necessarily depression.

Finally, a 2002 meta-analysis^[11] looked at diabetic patients, blood sugar control, and anxiety. The authors found some significant correlations between hyperglycemia and anxiety. For those of you who are working in hospital settings or have a significant number of patients with diabetes in your practices, this is something to pay attention to.

Our Clinic Experience

What do we do at the Brain Food Clinic? Anxiety is one of our favorite symptoms to treat with food, for several reasons. We often find that our patients with panic disorder, for example, are not eating in a regulated way. A lot more anxiety and panic happen when patients are hungry or have not been eating a diet that includes robust amounts of protein and fats.

Often, we will discuss the day together, to help patients think of a more structured eating plan. Busy professionals who spend long days at work may skip a meal. This is exactly when we tend to see more anxiety and panic. In this case, we will help them figure out how they can stock the workplace with foods that have a long shelf-life are but highly nutrient-dense, so that such things as apples, yogurt, cheese, and nuts are always available. Those are some of the interventions that we like, so people can be truly well fed.

Overall, anxiety certainly can be influenced by food. The same data that told us about depression and food seems to spill over to anxiety. Given that many of our interventions that treat depression, such as psychotherapy and selective serotonin reuptake inhibitors, also treat anxiety. Overall, increasing the nutrient density of your patients' diets, focusing on leafy greens, rainbow vegetables, and more seafood and eliminating the highly processed, sugary foods, should be beneficial. In some patients, food can certainly contribute to anxiety, as the data tell us.

What are you finding in your practice about food and anxiety? Please let us know in the comments below. Thank you so much for listening.