FOOD FOR BOOSTING POST COVID 19 MENTAL HEALTH: A REVIEW STUDY

'Dr. Naeela Ansari and 'Dr. Sirajuddin Shaikh

1Associate Professor, Department of Tahaffuzi wa Samaji Tib, State Takmil-ut Tib College and Hospital, Lucknow, Uttar Pradesh, India
2Assistant Professor, Department of Tazeeniyat ZVM Unani Medical College and Hospital, Pune, Maharashtra, India

ABSTRACT

Previous research has revealed a profound and broad-spectrum of psychological impact that outbreaks can inflict on people. The Covid 19 pandemic has disrupted critical mental health services in 93% of countries worldwide. Studies have reported a high prevalence of psychological distress with longer duration of quarantine associated with an increased prevalence of posttraumatic stress disorder and depressive symptoms. The importance of diet and the potential role of micronutrients, macronutrients, minerals and anti-oxidants in modifying mental health have been proved by several studies. Hence particular attention should now be paid to promote healthy eating and maintain good nutrition during a difficult life stage like Covid 19 pandemic. This review study suggests some of very essential nutrients and diets that can boost immunity as well as the brain health of Covid survivors.

BACKGROUND

Brain Health is an emerging and growing concept in this era of pandemic. It encompasses neural development, plasticity, functioning, and recovery across the life course. According to WHO definition good brain health is a state in which every individual can realize their own abilities and optimize their cognitive, emotional, psychological and behavioral functioning to cope with life situations. From pre-conception to the end of life, numerous interconnected social and biological determinants (including genetics) play a critical role in brain development and brain health. The Covid 19 pandemic has disrupted critical mental health services in 93% of countries worldwide1. There are several direct and indirect consequences of COVID-19 on mental health conditions. Pre-existing Mental health, Neurological and Substance use (MNS) disorders increase the risk of becoming severely ill or of death, or of having long-term complications due to COVID-19. By managing Mental health, Neurological and Substance use (MNS) disorders will advocate people's recovery from COVID-191.

The fact that feeding is an intrinsic human routine emphasizes the power of dietary factors to modulate mental health. By the use of plenty of water, minerals like zinc,
magnesium etc., micronutrients, herbs, food rich in vitamin C, D and E and better lifestyle one can promote the health and can overcome this SARS COV-2 infection and its psychiatric manifestation.

DISCUSSION
Eating a balanced diet, drinking enough water and limiting alcohol and caffeine, there are many other dietary considerations that can relieve anxiety and stress. For example, carbohydrate is metabolized slowly and maintain a more even serum sugar level which creates calmer feeling. The dietary variables that function in cognition includes intakes of energy, macronutrients, and selected micronutrients (i.e., vitamins B6, B9, B12, and C, plus the trace minerals iron, and zinc). Insufficient nutrient intake can influence brain function and clinical psychiatric states. Deficiencies in niacin, thiamine, vitamin B12 and folate have adverse neuropsychiatric effects. Several studies claim that foods rich in magnesium, zinc, omega -3 fatty acid, lowers anxiety, depression & stress and help person to feel calmer. Dietary consumption of omega-3 fatty acids is one of the best-studied interactions between food and brain evolution. A diet that is rich in omega-3 fatty acids is known for supporting cognitive processes in humans. Omega-3 fatty acids are polyunsaturated fats in food that are essential for health. There are three main types:

1. Eicosapentaenoic acid (EPA)
2. Docosahexaenoic acid (DHA)
3. Alpha-linolenic acid (ALA)

Alpha-linolenic acid (ALA), an 18-carbon omega-3 essential Fatty Acid, is the precursor of eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA). The term “essential” indicates that ALA cannot be synthesized by humans and therefore must be entirely acquired from exogenous sources. The body converts only a small fraction of ALA into EPA or DHA. Docosahexaenoic acid (DHA) is the most abundant omega-3 fatty acid in cell membranes in the brain. Omega-3 fats perform a number of jobs, especially building cell membranes throughout the body and the brain. “There is evidence they can have anti-inflammatory and antioxidant effects as well, which means they might promote healthier brain cells and less deterioration of the brain”. Some research studies show that people who consume more omega-3s from food such as fish may have a lower risk of developing Alzheimer’s disease, dementia, and other problems with cognitive function.

The cross-sectional studies in Japan, Norway and Australia concluded a relationship between dietary patterns and depression in adults. Subjects with a high consumption frequency of fish, fruits and vegetables have a lower probability of depressive symptoms, while a high consumption of refined/processed foods are associated with increased risk of depressive symptoms. A prospective study conducted in UK, demonstrated an increased likelihood of depression in subjects adhered to a processed food dietary pattern and a reduced likelihood in subjects following a whole foods diet pattern (vegetables, fruits, fish). An increased incident of depression has been reported among Chinese adolescent with high snacking patterns, while in Australia the same observation was observed among adolescents consuming a western diet. A study done by Sanchez et al. suggest a potential protective role of the Mediterranean dietary pattern (MDP) with regard to the prevention of depressive disorders. The main components of Mediterranean diet include: Daily consumption of vegetables, fruits, whole grains and healthy fats, Weekly intake of fish, poultry, beans and eggs, moderate portions of dairy products and limited intake of red meat.

Sources of Omega-3 fatty acids
Omega-3s are found naturally in some foods and are added to some fortified foods. You can get adequate amounts of omega-3s by eating a variety of foods, including the following:

- Fish and other seafood (especially cold-water fatty fish, such as salmon, mackerel, tuna, herring, and sardines)
- Nuts and seeds (such as flaxseed, chia seeds, and walnuts)
- Plant oils (such as flaxseed oil, soybean oil, and canola oil)
- Fortified foods (such as certain brands of eggs, yogurt, juices, milk, soy beverages, and infant formulas).

These above-mentioned foods spur the release of neurotransmitter such as serotonin and dopamine. They are safe and easy first step in managing anxiety.

UNANI PRINCIPLES OF TREATMENT:

Ilaj Bil Ghiza: Murattab (moist), Mufarreh (exhilarant), Musaffi-e-Khoon (blood purifier) and highly nutritious food/diet is recommended such as –

1. Fruits like Seb (Malus domestica) and Anar (Punica granatum).
2. Aromatic oils like Roghan Badam (Prunus amygdalus), Roghan Kaddu (Cucurbita maxima), Roghan Banafsha (Viola odorata) may be used as tadheen (Unction) over the scalp to induce tarreeb.
3. Sauda (black bile) producing diet and drug (melanogouge) may be strictly avoided like Namak-e-
Table 1: Overview on role of nutrients for nerve function and their sources:

<table>
<thead>
<tr>
<th>VITAMIN</th>
<th>IMPLICATION IN NERVOUS SYSTEM</th>
<th>SOURCE</th>
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<tbody>
<tr>
<td>Docosahexaenoic acid (DHA)</td>
<td>Omega-3 fatty acids may provide a range of Neurobiological activities via modulation of neurotransmitters, anti-inflammation, antioxidation and neuroplasticity which could contribute to their psychotropic effects.</td>
<td>Oily fish such as mackerel and salmon, green vegetables (such as Brussels sprouts, spinach, and kale), vegetable oils (such as canola or soybean), nuts (such as walnuts), and seeds (such as flax seeds and pumpkin seeds).</td>
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<tr>
<td>B1 (Thiamine)</td>
<td>Provide energy to nerve cells which are needed for synthesis of nucleic acids, neurotransmitters, and myelin.</td>
<td>Beef, Liver, Dried Milk, Nuts, Oats, Oranges, Pork, Eggs, Seeds, Legumes, Peas and Yeast. Foods Are Also Fortified with Thiamine. Some Foods That Are Often Fortified with B1 Are Rice, Pasta, Breads, Cereals and Flour.</td>
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<tr>
<td>B6 (pyridoxine)</td>
<td>Metabolism of amino acids, neurotransmitters, and DNA/RNA</td>
<td>Pork, Poultry, Such as Chicken or Turkey, Some Fish, Peanuts, Soya Beans, Wheatgerm, Oats, Bananas, Milk, Some Fortified Breakfast Cereals.</td>
</tr>
<tr>
<td>B12 (Cobalamin)</td>
<td>Metabolism of fatty acids, amino acids, neurotransmitters, myelin, and DNA/RNA, make red blood cells and keeping the nervous system healthy release energy from food, use folate.</td>
<td>meat, fish, milk, cheese, eggs.</td>
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<td>Vitamin C</td>
<td>Vitamin C has a significant role in modulating neurotransmitter synthesis and release in the brain. vitamin C deficiency has been associated with depression and cognitive impairment, mood disturbance, depression, confusion, social inversion, 'neurotic triad' (hypochondriasis, depression, hysteria) etc.</td>
<td>Guavas, Bell Peppers, Kiwifruit, Strawberries, Papayas, Broccoli, Tomatoes, Kale, And Snow Peas, Citrus Fruits Like Oranges, grapefruits, lemons and limes, Leafy green vegetables like spinach, Amla (Indian Gooseberry) and Cauliflower.</td>
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<td>Iron</td>
<td>Iron deficiency causes abnormal dopaminergic neurotransmission and may contribute to the physiopathology of attention-deficit/hyperactivity disorder (ADHD).</td>
<td>Pumpkin seeds (pepitas) and sunflower seeds, Nuts, especially cashews and almonds, Whole grain cereals such as oats or muesli, wholemeal bread, brown rice, amaranth and quinoa, Dried apricots, Vegetables such as Kale, broccoli, spinach and green peas, Liver, red meat, beans, such as red kidney beans, edamame beans and chickpeas, dried fruit – such as dried apricots, soy bean flour.</td>
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<td>Zinc</td>
<td>zinc activates hormonal, neurotransmitter and signaling pathways in the gut which modulate brain functions like appetite, sleep, neurogenesis, cognitive function mood and many neurological disorders, like Alzheimer’s disease (AD) and Parkinson’s disease (PD).</td>
<td>Oysters, Red Meat and Poultry, Beans, Nuts, Certain Types of Seafood (Such as Crab and Lobster), Whole Grains and Dairy Products.</td>
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<td>Magnesium</td>
<td>Magnesium may protect neurons against cell death. It involved in the glutamatergic system, regulating learning, memory, neuroplasticity and perhaps antidepressant activity.</td>
<td>Leafy green vegetables like spinach and legumes (peas, soyabean, lentils, chickpeas and beans), nuts (cashew, brazil nut and almond), seeds (pumpkin seeds, flax, chia seeds), whole grains (wheat, oat and barley), dark chocolate, fruits like avocados and bananas.</td>
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CONCLUSION

Current research in psychoneuroimmunology and brain biochemistry indicates the association between nutritional intake, central nervous system, and immune function thereby influencing an individual's psychological health status. These findings may lead to greater acceptance of the therapeutic value of dietary intervention among health practitioners and health care providers addressing depression and other psychological disorders in this pandemic of Covid-19.

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