



Nutrition for Mental Health: Guidance for Clinical Practice

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ABSTRACT

Nutritional psychiatry is an emerging field that explores the relationship between diet and mental health. Research focuses on dietary patterns, gut microbiome health, and the impact of individual nutrients on mental health. Nutritional and lifestyle interventions can complement psychopharmacology and psychotherapy in clinical practice. This clinical feature article reviews evidence supporting nutritional interventions for mental health and provides clinical guidance.

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Background

Mental illness rates are rising in the United States, affecting 57.8 million adults (22.8%) and 7.7 million youth (ages 6–17) annually.¹ This impacts 1 in 5 adults and 1 in 6 youth in the United States.¹ It has been well documented that individuals with psychiatric illness are at higher risk for poor nutrition, cardiometabolic issues, and reduced lifespan.² Lifestyle factors such as poor diet habits, lack of exercise, and elevated stress levels are also more prevalent among those with mental illness.³ Symptoms such as low energy, poor motivation, and disorganized thinking predispose these individuals to poor follow-up and difficulty understanding health advice.⁴ In addition, people living with mental health disorders may have an increased risk for nutritional deficiencies, side effects of psychiatric medication, and risk for nutrition-related health inequities such as food insecurity.⁵ Their illness can be disabling, increase financial hardship, and reduce their ability to self-manage general health and daily activities.⁶ Prior research has also indicated that individuals with mental illness may consume more calories, have a poorer quality diet, and eat more processed foods than the general population.⁷

Traditional treatments such as psychopharmacotherapy and psychotherapy manage mental illness effectively, but research suggests that it often yields suboptimal outcomes.⁸ In recent years, research on the impact of nutrition on mental health has surged, suggesting that it could play a crucial role in potentially decreasing the prevalence of these conditions.⁹ Previous research has shown that lifestyle interventions, including nutritional education, can be effective in reducing cardiometabolic risk for those with mental illness and should be considered as part of standard practice.¹⁰ In addition, it is believed that incorporating nutritional interventions into psychiatric treatment can enhance physical and mental health outcomes.⁷

Strong associations have been identified between nutritional quality and mental health. Most evidence points to a protective effect of healthy diets on depressed mood,¹¹ and some studies highlight the harmful impact of unhealthy diets on mental health.¹² Given the strength of these findings, it has been argued that nutritional medicine should be considered part of mainstream treatment for psychiatric disorders.¹³ This clinical feature reviews evidence supporting the use of supplements and nutritional interventions for mental health and provides clinical guidance to primary care and psychiatric providers.

Pathophysiology

Mental health disorders involve various biological pathways that nutrition may influence, including inflammation, oxidative stress, the gut microbiome, epigenetics, and neuroplasticity.^{14,15} Chronic inflammation and oxidative stress can damage neural tissues and disrupt neurotransmission, contributing to conditions such as depression and anxiety.¹⁴ Individuals with major depressive disorder (MDD) often exhibit elevated levels of pro-inflammatory cytokines such as interleukin-6 (IL-6) and tumor necrosis factor-alpha (TNF- α).¹⁴ Oxidative stress, an imbalance between free radicals and antioxidants, leads to cellular damage and is common in psychiatric disorders.¹⁵ Antioxidant-rich diets can mitigate oxidative stress and protect neural integrity, improving cognitive function and mood stability.¹⁵

The gut microbiome is increasingly recognized for its role in mental health. The gut–brain axis involves bidirectional communication between the gut microbiota and the brain, influencing neuroinflammation, neurotransmitter production, and overall mental health.^{14,15} Dysbiosis, or an imbalance in gut microbiota, has been linked to increased intestinal permeability and systemic inflammation, which can exacerbate psychiatric symptoms.¹⁴

Epigenetic modifications refer to changes in gene expression without altering the DNA sequence. Nutritional factors can influence epigenetic mechanisms, such as DNA methylation and histone modification, potentially altering gene expression in mood regulation and stress response.¹⁴ For example, folate and other B vitamins are crucial for 1-carbon metabolism, which is necessary for DNA methylation processes. Adequate intake of these nutrients can support proper gene expression and help manage symptoms of mental disorders.¹⁴

Finally, neuroplasticity, the brain's ability to reorganize itself by forming new neural connections, is vital for mental health. Nutrients such as B vitamins, magnesium, and omega-3 fatty acids support neuroplasticity. These nutrients help enhance cognitive function and resilience to stress, which are crucial for managing symptoms of mental health disorders.¹⁵ For instance, omega-3 fatty acids, particularly eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), have been shown to promote synaptic plasticity and improve learning and memory functions.¹⁵

Screening and Diagnosis

Recognizing mental health diagnoses is crucial for developing a holistic care plan, including nutritional support. Typically, mental health screening tools exclude nutritional intake. Numerous organizations recommend that providers, especially primary care providers, screen for mental health disorders. Evidence-based screening tools for depression and anxiety include the Patient Health Questionnaire (PHQ-9) and General Anxiety Disorder—7 (GAD-7) and are recommended for use in collaborative care team approaches to patient care.¹⁶ Screening allows providers to connect patients to valuable resources and may lead to lower health care costs—but more importantly, to better health outcomes for patients with mental illnesses.¹⁷ Providers may be able to “bundle” screening tools to assess for more than 1 mental health condition, which may be helpful to the patient.¹⁷

Nutritional screening can be integrated with mental health assessments. The Dietary Intake Evaluation Questionnaire for Serious Mental Illness (DIETQ-SMI) is a validated tool for assessing nutritional status.¹⁸ This tool may be helpful for providers seeking to learn more about their patients' nutritional status. It assesses nutritional status and identifies nutrient deficiencies, as well as excesses. This allows providers to develop targeted care and resources. The DIETQ-SMI tool includes general food categories but allows specific items that patients with mental illness may consume more frequently, such as snacks, fast food, or sugar-sweetened beverages. There are detailed questions about portion sizes and frequency to help identify binge or emotional eating.¹⁸

With the increased risk for chronic disease in patients struggling with mental illness, the analysis of inflammation and its role in disease exacerbation can be evaluated by nurse practitioners. The Dietary Inflammation Index (DII) was developed to uncover the links between diet and inflammation and, therefore, chronic diseases.¹⁹ DII scores have been shown to correlate for inflammatory biomarkers, such as IL-6, TNF- α , and C-reactive protein.²⁰ Higher scores were associated with higher inflammation. In a meta-analysis in 2021, Chen and colleagues found associations of high DII scores with depression, anxiety, distress, and schizophrenia. Dietary modifications and counseling may be effective as adjuvant therapy and chronic disease prevention in those with higher DII scores.²¹

Another tool for assessing nutritional status is the Health Eating Index, developed by the US Department of Agriculture (USDA) in 2005 and used with the Dietary Guidelines for Americans (DGA).²² This survey quantifies the quality and quantity of foods eaten and provides a score out of 100 compared with the current DGA. Scores

can be compared with other Americans on the Healthy Eating Index Website. Combining this index with other USDA resources, such as education, printouts, and dietary suggestions, may be a powerful tool for providers.²²

Patients have many points of contact within the health care system throughout their lifetime, which may afford opportunities to include these screening methods. Primary care and psychiatric providers, dietitians, physical and occupational therapists, nurses, social workers, internists, and pediatric and obstetric professionals can perform these screenings, which provides an opportunity to identify and aid holistic treatment of their mental illness.

Management

Traditional treatments should remain primary in psychiatric care, but the following guidelines and recommendations offer valuable supplemental treatment considerations. Nutraceuticals are nutrient-based products manufactured under pharmaceutical good manufacturing practices (GMP), standardized, and optimized to enhance therapeutic efficacy.¹³ They include vitamins, minerals, amino acids, fats, and proteins. They are used to prevent, manage, or treat various health conditions. In the context of psychiatric disorders, nutraceuticals are considered for their potential to support mental health by influencing biochemical and physiological processes. The rigorous production standards ensure that these products are of high quality and consistency, making them a reliable option for clinical use.¹³

Phytoceuticals are plant-based natural products that also adhere to pharmaceutical GMP.¹³ These products are derived from various parts of plants and are standardized to ensure consistency and efficacy. Phytoceuticals include herbal medicines and extracts that are used for their medicinal properties. In psychiatric care, phytoceuticals often contain bioactive compounds that can interact with neurotransmitter systems, reduce inflammation, and provide antioxidant effects. The emphasis on standardization helps maintain the therapeutic integrity of phytoceuticals, ensuring that patients receive a consistent and effective dosage.¹³

The World Federation of Societies of Biological Psychiatry (WFSBP) and the Canadian Network for Mood and Anxiety Disorders (CANMAT) developed guidelines for treating psychiatric disorders with nutraceuticals and phytoceuticals.¹³ Recommendations from these guidelines are summarized in the following sections (see also Table 1).

Nutraceuticals

Omega 3

Nutritional components like omega-3 fatty acids and antioxidants have been shown to reduce inflammatory markers, specifically, IL-6 and TNF- α levels, potentially alleviating mental health symptoms.¹⁴ In addition, omega-3 fatty acids have been shown to promote synaptic plasticity and improve learning and memory functions.¹⁵ The WFSBP/CANMAT guidelines currently recommend omega-3 fatty acids as an adjunctive treatment for MDD and weakly recommend them as an adjunctive treatment for bipolar disorder.¹³

Vitamin D

Vitamin D receptors are present in various brain regions and are associated with regulating emotions and behaviors.²³ There have been higher rates of vitamin D deficiency in individuals with mental health disorders due to a diet lacking vitamin D intake, poor sunlight exposure, decreased vitamin D synthesis, and certain

Table 1
Summary of Evidence

	Mental Health Diagnosis	Summary of Evidence	Source
Nutraceuticals			
Omega-3 fatty acids	Unipolar depression	Dose: 1–2 g of eicosapentaenoic acid (EPA)	(Sarris et al, 2022)
	Adjunctive	<i>Recommended for Adjunctive use in MDD</i> No recommended for monotherapy	
	Bipolar depression	<i>Weakly Recommended for Adjunctive use in bipolar depression</i>	
Vitamin D	Unipolar depression	Dose: 1500 IU and 4000 IU per day	(Sarris et al, 2022)
	ADHD	<i>Weakly Recommended for Adjunctive or Monotherapy use in MDD</i>	
		<i>Weakly Recommended for Adjunctive use in ADHD in children</i>	
Probiotics	Unipolar depression	Probiotic strains (eg, <i>Lactobacillus</i> and <i>Bifidobacterium</i> spp.)	(Sarris et al, 2022)
		Dose: 1–10 billion units per day <i>Provisionally Recommended for Adjunctive use</i>	
		<i>Weakly Recommended for Monotherapy use in MDD</i>	
Zinc	Unipolar depression	Dose: ~25 mg per day	(Sarris et al, 2022)
		<i>Provisionally Recommended for Adjunctive use in MDD</i>	
Methylfolate	Unipolar depression negative symptoms in schizophrenia	Dose: 15 mg per day	(Sarris et al, 2022)
		<i>Provisionally Recommended for Adjunctive use in MDD</i>	
		Methylfolate (1–15 mg) per day is <i>Provisionally Recommended for Adjunctive use in schizophrenia</i> (primarily for negative symptoms)	
S-adenosyl methionine (SAME)	Unipolar depression	Dose: 1,600–3,200 mg	(Sarris et al, 2022)
		<i>Weakly Recommended for Adjunctive use in MDD and not recommended for monotherapy.</i>	
N-acetyl cysteine (NAC)	OCD	Dose: 2–3 g per day	(Sarris et al, 2022)
	Negative symptoms in schizophrenia	<i>Weakly Recommended for Adjunctive use in obsessive compulsive disorder</i>	
		<i>Provisionally Recommended for Adjunctive use in schizophrenia</i> (primarily for negative symptoms)	
Micronutrients	ADHD	Broad-spectrum micronutrient (13 vitamins and 15 minerals)	(Sarris et al, 2022)
		Dose: 8–12 capsules per day	
		<i>Weakly Recommended for Monotherapy use in ADHD</i> (children and adults)	
Phytoceuticals			
St John's wort	Unipolar depression	Dose: 600–1,800 mg per day to a dose of approximately 0.2–0.3% hypericin and/or 5%–6% hyperforin (1–3 times per day depending on extract)	(Sarris et al, 2022)
		<i>Recommended for Monotherapy use in MDD</i>	
Saffron	Unipolar depression	Dose: 30 mg of the stigma, or standardized to safranal or crocin isomers (1–3 times per day depending on extract)	(Sarris et al, 2022)
		<i>Provisionally Recommended for Monotherapy or Adjunctive use in MDD</i> (mild to moderate depression)	
Curcumin	Unipolar depression	Dose: approximately 500–1,000 mg/day (depending on extract)	(Sarris et al, 2022)
		<i>Provisionally Recommended for Monotherapy or Adjunctive use in MDD</i> (mild to moderate depression)	
Lavender	Unipolar depression	Dose: 80–160 mg of essential oil per day (in the form of soft gels), or 500 mg to 1.5 g of dried flower (preferably in the form of standardized formulations), twice per day	(Sarris et al, 2022)
	Anxiety	<i>Weakly Recommended for Monotherapy or Adjunctive use in MDD</i>	
		<i>Provisionally Recommended for Monotherapy or Adjunctive use</i> (application with “treatment as usual”) in GAD	
Ashwagandha	Anxiety	Dose: 300–600 mg (standardized to 5% withanolides) per day	(Sarris et al, 2022)
		<i>Provisionally Recommended for Monotherapy or Adjunctive use</i> (application with “treatment as usual”) in GAD	
Galphimia	Anxiety	Dose: 350–700 mg twice per day (standardized to galphimine B)	(Sarris et al, 2022)
		<i>Weakly Recommended for Monotherapy use in GAD</i>	
Ginkgo	Adjunctive treatment of negative symptoms of schizophrenia	Dose: 120–360 mg (50:1 standardized extract)	(Sarris et al, 2022)
		<i>Weakly Recommended for Adjunctive use in schizophrenia</i> (primarily for negative symptoms)	
Dietary			
Mediterranean diet	Unipolar depression	• Diet is associated with neuroprotective outcomes, positive effects on the gut microbiota, antidepressant benefits, and decreased cognitive decline	(Ekstrand, 2021; Grajek et al, 2022)
	Anxiety	• Recommended for improving mood and reducing symptoms of anxiety and mental stress	
		• Observational studies report a 28% decreased risk of neurological disorders with adherence to this diet	
Anti-inflammatory diet	Unipolar depression	• High consumption of anti-inflammatory foods such as omega-3 fatty acids, antioxidants, and fiber reduces neuroinflammation and supports mental health	(Wang et al, 2023)
	Anxiety	• Diet includes avoidance of fried foods, which disturb lipid metabolism and contribute to anxiety and depression	
MIND diet	Unipolar depression	• Diet combines Mediterranean and DASH diet principles; emphasizes natural plant-based foods, moderate red wine, and minimal high-fat/animal products	(Ekstrand, 2021; Grajek et al, 2022)
	Preventative: Alzheimer's	• Linked to better cognitive functioning, neuroprotective outcomes, and decreased cognitive decline	
		• Diet can be effective in preventing neurodegenerative disorders like Alzheimer's and lowering risks of depression and psychological distress	
Ketogenic diet	Bipolar depression	A ketogenic diet shows promise for refractory mental illnesses and improving psychiatric health in bipolar disorder and schizophrenia. Benefits include mood stabilization and reduction of neuroinflammation and oxidative stress.	(Danan et al, 2022; Sethi et al, 2024)
	Schizophrenia		

ADHD = attention-deficit/hyperactivity disorder; GAD = generalized anxiety disorder; MDD = major depressive disorder.

medications such as mood stabilizers.²³ As a result, screening for vitamin D levels in psychiatry is becoming a more common practice and should be considered part of routine screening.²³ The WFSBP/CANMAT guidelines currently weakly recommend vitamin D doses of between 1,500 IU and 4,000 IU per day for adjunctive use or monotherapy in MDD and adjunctive use only in attention-deficit/hyperactivity disorder (ADHD) in children.¹³

Probiotics

Probiotics and prebiotics support a healthy gut microbiome and can benefit mood and anxiety levels. Strains such as *Lactobacillus* and *Bifidobacterium* have been shown to reduce symptoms of anxiety and depression by modulating the gut–brain axis.¹⁴ Currently, probiotic strains (eg, *Lactobacillus* and *Bifidobacterium* spp.) at doses of 1 to 10 billion units per day are provisionally recommended for adjunctive use and weakly recommended for monotherapy use in MDD.¹³

Zinc

Zinc is involved in various mental functions, including behavior and learning. Various studies have since identified zinc's role in the pathophysiology of depression and the mechanisms of action of antidepressant drugs.²⁴ Additionally, other clinical studies have demonstrated low serum zinc concentrations in patients with depression.²⁵ The current guidelines provisionally recommend zinc at doses of ~25 mg per day for adjunctive use in MDD.¹³

Methylfolate

Studies have shown a link between folate deficiency and neuropsychiatric disorders. It is estimated that up to 70% of depressed individuals have a genetic variant of the methylenetetrahydrofolate reductase enzyme that compromises their ability to convert dietary folate or synthetic folic acid to L-methylfolate (MTHFR).²⁶ Genetic testing is now readily available to test for this variant and has become more common practice in mental health treatment. In addition, Methylfolate has been linked to various mechanisms in patients with depression, including antioxidant effect, monoamine synthesis, and neurogenesis, and has been shown to enhance antidepressant response.²⁷ The WFSBP/CANMAT guidelines provisionally recommend methylfolate 15 mg per day adjunctive use in MDD and methylfolate 1–15 mg per day for adjunctive use in schizophrenia.¹³

SAM-e

SAM-e (s-adenosyl methionine) is a naturally occurring compound found within human cells. It is essential for various biochemical processes, including regulating mood.²⁸ Although a recent review showed that SAMe may be effective for monotherapy,²⁸ the current guidelines only weakly recommend SAMe for adjunctive use in MDD at 1,600–3,200 mg daily.¹³

NAC

NAC (n-acetyl cysteine) is a compound thought to benefit mental health through its anti-inflammatory properties and antioxidant and glutamate modulation activity.²⁹ Although NAC has been investigated in several psychiatric conditions, the current guidelines weakly recommend it as an adjunctive treatment for obsessive-compulsive disorder at doses of 2–3 g per day.¹³

Micronutrients

Although supplementation with single nutrients has shown mixed results, a combination of micronutrients has been used in research studies.³⁰ Micronutrient benefits are thought to be related to their function in brain processes and as cofactors for synthesizing neurotransmitters.³⁰ Micronutrient formulations may contain vitamins, minerals, amino acids, and antioxidants. The WFSBP/CANMAT guidelines weakly recommend a broad-spectrum micronutrient (13 vitamins and 15 minerals) formula taken as 8–12 capsules per day for monotherapy use in ADHD (children and adults).¹³

Phytoceuticals

Saint John's Wort

St. John's wort is an herbaceous plant containing many bioactive molecules. It has been shown to impact mood by inhibiting the reuptake of neurotransmitters as well as downregulation of beta-adrenergic receptors, thus resembling a similar mode of action as antidepressants.³¹ St John's wort flowers at doses of 600–1,800 mg per day to a dose of approximately 0.2%–0.3% hypericin and/or 5%–6% hyperforin (1 to 3 times per day, depending on extract) is recommended for monotherapy use in MDD.¹³

Saffron

Saffron is a spice from the plant *Crocus sativus* and has been studied as an herbal compound. Although its exact mechanism of action is unknown, it is thought to inhibit serotonin reuptake in synapses.³² Saffron at a dose of approximately 30 mg of the stigma or standardized to safranal or crocin isomers (1–3 times/day, depending on extract) is provisionally recommended for monotherapy or adjunctive use in MDD (mild to moderate depression).¹³

Curcumin

Curcumin is a compound extracted from the turmeric plant and has been proposed to have benefits from its antioxidant, anti-inflammatory, and neuroprotective properties.³³ Curcumin extract at a dose of approximately 500–1,000 mg per day is provisionally recommended for monotherapy or adjunctive use in MDD.¹³

Lavender

Lavender has been shown to have anxiolytic effects through possible inhibition of voltage-dependent calcium channels as well as activation of several aspects of neuroplasticity.³⁴ Lavender at doses of 80–160 mg per day (gels) or 500 mg to 1.5 g of dried flower twice per day is weakly recommended for monotherapy or adjunctive use in MDD. It is also provisionally recommended for monotherapy or adjunctive use in generalized anxiety disorder (GAD).¹³

Ashwagandha

Ashwagandha is an herb with anti-inflammatory and antioxidant properties, as well as anxiolytic, antidepressant, and neuroprotective effects.³⁵ Ashwagandha root extract at doses of 300–600 mg per day is provisionally recommended for monotherapy or adjunctive use in GAD.¹³

Galphimia

Galphimia is a tropical plant thought to have anxiolytic effects by inhibiting dopamine and serotonin.³⁶ *Galphimia aerial* parts extract at doses of 350–700 mg twice daily is weakly recommended for monotherapy use in GAD.¹³

Ginkgo

Ginkgo biloba is a plant extract commonly used around the world. It is thought to have psychiatric benefits through its effects on dopaminergic function in various areas of the brain.³⁷ Ginkgo extract at doses of 120–360 mg is weakly recommended for adjunctive use in schizophrenia.¹³

Although guidelines around nutraceuticals and phytochemicals have been established, there are currently no identified consensus or clinical guidelines for specific diets for mental health. To date, however, numerous studies and several systematic reviews have explored regimented diets and psychiatric illness.

Nutritional and Diet Recommendations

Mediterranean Diet

The Mediterranean diet, rich in monounsaturated fats like olive oil, nuts, vegetables, fruits, plant proteins, whole grains, and fish, is linked to neuroprotective outcomes, gut microbiota benefits, antidepressant effects, and decreased cognitive decline.^{9,14} The Mediterranean diet also comprises a low intake of foods such as red meat, refined grains, and sweets, which have been shown to be detrimental to cognitive health.¹⁴ In adults diagnosed with depression, it has been shown to improve mood significantly and reduce symptoms of anxiety and mental stress.^{9,14} Observational studies have noted a 28% decreased risk of developing neurological disorders when comparing adherence to the Mediterranean diet versus other diets.⁹ In addition, Mediterranean dietary patterns have also been shown to play a significant role in improving inflammatory markers.³⁸

Anti-Inflammatory Diet

Diets high in sugar, fat, and saturated fatty acids are linked to inflammation, associated with severe mental health disorders such as schizophrenia and bipolar disorder, characterized by elevated pro-inflammatory cytokines.^{38,39} Mental health disorders, including depression and anxiety, have been associated with the microbiome–gut–brain axis, inflammatory markers, immune function, and serotonin neurotransmission.⁴⁰ In addition, acrylamide, a hazardous processing contaminant associated with fried foods and mental illnesses such as depression and anxiety, has also been correlated with a potentially increased risk of inflammation.⁴¹ Prolonged exposure to acrylamide has also been shown to induce anxiety and depressive-like symptoms due to oxidative-stress-mediated neuroinflammation.⁴¹ Neuroinflammation has also been negatively correlated with disorders such as dementia and mild cognitive impairment.¹⁵ Research studies have shown an inverse relationship between depression and anxiety severity and diets or supplements that are high in anti-inflammatory properties such as vitamin C, vitamin A, polyphenol, and beta-carotene.⁴⁰ These diets and supplements may also provide benefits in improving treatment outcomes and the quality of life for patients diagnosed with these mental health conditions.⁴⁰

MIND Diet

With a combination of the Mediterranean and Dietary Approaches to Stop Hypertension (DASH) diet principles, the MIND diet places a strong emphasis on consuming natural, plant-based foods and foods lower in fat and animal products.⁹ It comprises a moderate amount of dry red wine and meals high in vegetables, fruits, nuts, whole grains, olive oil, seafood, and fish.⁹ The MIND diet is also associated with neuroprotective outcomes, better cognitive functioning, decreased cognitive decline, and lower cognitive impairment risk.^{9,15} This diet has shown benefits in the prevention and progression of neurodegenerative disorders such as Alzheimer's disease.⁹ Additionally, the MIND diet has been correlated with significantly lower incidences of mental health conditions such as depression and psychological distress.^{9,15}

Ketogenic Diet

The ketogenic diet (KD) offers a metabolic approach that restricts carbohydrate intake and induces lipolysis, which generates circulating ketone bodies that the brain uses as a source of fuel.^{39,42} Although there are alternative or modified versions of the KD, the classic KD requires the omission of high-carbohydrate items such as bread, pasta, grains, starch fruits, and sugar.⁴² Historically, the KD has been used for more than a century to treat neurological conditions such as epilepsy. Certain psychiatric conditions, such as bipolar disorder, have been known to share many neurochemical underpinnings with epilepsy.^{39,42} The KD has been described in the management of depression, bipolar disorder, and schizophrenia as rebalancing neurotransmitter systems, stabilizing neural networks, improving neuroplasticity, and bridging the energy gap associated with these severe mental health disorders.^{39,42} In one research study of hospitalized patients diagnosed with bipolar illness or severe depression, adherence to the KD was attributed to significant improvements in symptoms of depression and psychosis as well as metabolic parameters such as body weight, blood pressure, blood glucose, and triglyceride levels.^{39,42} Studies suggest that adhering to the KD may be beneficial for the management and mood stabilization of patients diagnosed with some psychiatric illnesses.^{39,42}

Patient Education

Patient education on proper nutrition benefits in various settings is essential. Correlations have been found between the need for nutritional counseling, increased pain, and increased anxiety/depression.⁴³ Studies have also noted that most psychiatric practices do not often offer nutritional counseling, thus indicating an unmet patient need. Nutritional counseling does not have to be limited to the psychiatric clinic. Clinical guidelines for using lifestyle interventions for mental health care recommend dietary counseling to improve nutritional habits.³⁸ These guidelines recommend motivational interviewing, incorporating multimodal techniques, improving awareness of nutrition requirements, and providing individualized and structured eating advice.³⁸

Mental health professionals can collaborate with dietitians, primary care, and social workers for patient nutritional education. Many providers lack training in nutrition, and nutritionists may lack experience with patients with serious mental illness.⁴³ Nutritional counseling that is inappropriate for the patient would not be helpful and should be complementary to traditional treatment modalities.¹³ For instance, if a person with schizophrenia does not purchase or prepare the food in the house, they might not be ready for recipes or discussions on meal prepping. Mental health providers can work with dietitians when they refer patients to ensure

that the patients can be met where they are. The plan of care should be personalized, and a review of any contraindications to supplements or dietary changes and any adverse effects should be discussed with the patient.

Conclusions

Limitations to these recommendations include a lack of controlled study data on enhanced nutritional support combined with traditional treatments, indicating opportunities for further research. Additional studies on cost-effectiveness, barriers to nutrition access, and patient health outcomes are also needed to provide better support to our patients with these complementary care methods.

Overall, mental health care requires a holistic treatment approach. Poor nutrition is linked to negative mental health symptoms and systemic stress that may underlie many disorders. This review explored the need to consider complementary nutritional support in addition to traditional treatment modalities. This should incorporate nutritional screening, assessment of dietary needs, and appropriate referrals to interdisciplinary team members. The health care team can collaborate to develop a care plan incorporating appropriate therapeutic modalities, including nutritional counseling, supplements, and pharmacotherapy.

CRedit authorship contribution statement

Ashley Fenton: Writing – review & editing, Writing – original draft, Methodology. **Kathryne Neiling:** Writing – review & editing, Writing – original draft, Conceptualization. **Maureen Ndzi:** Writing – review & editing, Writing – original draft, Conceptualization. **Colleen King Goode:** Writing – review & editing, Writing – original draft, Conceptualization. **Katherine G. Humphrey:** Writing – review & editing, Writing – original draft, Conceptualization.

Declaration of Competing Interest

In compliance with standard ethical guidelines, the authors report no relationships with business or industry that may pose a conflict of interest.

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