



The impact of diet and nutrition on mental health, Part 1

By Yoon Suh Moh

In this three-part series, we will explore an intricate mixture of determinants that affect mental health. First, we will examine lifestyle factors (e.g., diet) recognized as modifiable factors for mental health across the life span. Other factors will include the microbiota-gut-brain axis and early life experiences in brain and gut development leading to overall health. The biopsychosocial and lifestyle model will guide clinical case formulation that includes comprehensive assessment (e.g., dietary assessment).

In this month's article, we will cover major topic areas of the lifestyle factors of mental health across the life span and how diet affects human health, especially the onset and persistence of mental disorders. Understanding these areas will help increase clinical competence in counselors, with focus given to holistic, preventive approaches to counseling.

Mental health and well-being

Consistent with the World Health Organization's (WHO) definition of health as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity," mental health does not imply simply an absence of illness. What is the relationship between mental health and mental disorders then?

According to the WHO, mental health is defined as "a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her

community." According to a 2018 report from *The Lancet* commission on global mental health and sustainable development, well-being is a positive concept that incorporates subjective satisfaction with life and positive affect or mood, and meaningful functioning and human development. In contrast, the commission defined mental disorders as "disturbances of thought, emotion, behavior, and relationships with others that lead to substantial suffering and functional impairment in one or more life activities."

These two states exist on a continuum ranging from normal functioning of being and active participation in life to severe distress and disability, as described in an online course on food and mood offered this year through Australia's Deakin University. It is important to understand that the relationship between the two is not linear. This means that a client with symptoms of a mental disorder (e.g., decreased appetite, loss of interest or pleasure in life activities) and associated emotional distress and disability (i.e., an impairment in function) can still enjoy a certain degree of mental health that aligns with their expectations of being satisfied with their life and achieving their potential to contribute to the community.

Mental health determinants and the GBD

According to Gin Malhi and colleagues writing in the *Australian & New Zealand Journal of Psychiatry* in 2015, mental health is affected by an intricate mixture of social, biological,

genetic, developmental, psychological, environmental and lifestyle factors. Joseph Firth and colleagues suggested in *Frontiers in Psychiatry* in 2019 that lifestyle factors (e.g., diet, physical activity, sleep, alcohol and substance use) can affect the development and progression of numerous negative states on the mental health continuum across socioecological and cultural settings.

In a similar vein, findings from the Global Burden of Disease Study 2017 (GBD 2017) are shocking. For example, the GBD 2017 diet collaborators reported that 11 million deaths and 255 million disability-adjusted life years, which allowed for comparison to both years of life lived with disability and to premature mortality, were attributable to dietary risk factors (e.g., high intake of sodium, low intake of whole grains, low intake of fruits) globally. In addition, dietary risks affected people regardless of age, gender and sociodemographic development of their place of residence.

Even as a high-income country in North America, the United States is not an exception to this global health issue. Dietary risks were cited as the third-leading risk factor driving the most deaths and disabilities combined in the United States in 2017, behind only high body mass index (BMI) and tobacco use.

Diet as a lifestyle factor in overall health should attract the attention of counselors, especially when we consider the 28.9% increase in early death and disability nationwide between 1990 and 2016 due to being overweight

(defined as a BMI higher than 25 but less than 30) or obese (BMIs of 30 or higher). Findings from the GBD 2017 suggest that dietary patterns in North America involve approximately 20 grams of processed meat intake per day, when the optimal level of intake per day is less than 5 grams. Additionally, the consumption of sugar-sweetened beverages and sodium per day in North America was about 200 grams and 5 grams, respectively, whereas the optimal levels are close to 0 grams and 3 grams per day, respectively.

In her 2019 book *Brain Changer*, Felice Jacka described this phenomenon of dietary patterns using the term *malnubesity*, which refers to occasions when too much energy is consumed but with very little accompanying nutrition. In other words, the ultra-processed foods that make up so much of the modern diet are high in calories from fats and sugars but very low in nutrients, so they do not provide the nutrition needed for all of the body's processes. According to Jacka, the current food environment has given rise to a common occurrence in which individuals are simultaneously overweight or obese and undernourished — malnubesity.

Diet and depression

According to the GBD 2017, high levels of premature mortality were associated with mental disorders globally. Additionally, R.S. Opie and colleagues, writing in *Nutritional Neuroscience* in 2017, reported that diets higher in junk foods (e.g., sugar-sweetened drinks, fried foods, pastries, doughnuts, packaged snacks, processed and refined breads and cereals) are consistently linked to a higher risk of depression. In contrast, diets higher in whole foods (e.g., vegetables, fruits, whole grain cereals, beans, legumes, nuts and seeds, fish, olive oil) are consistently associated with a reduced risk of depression.

Given these findings, it is important to educate counselors on the current state of dietary patterns in the United States. According to the GBD 2017, in North America (including the United

States), the intake of fruits per day was approximately 110 grams (versus the optimal level of 250 grams per day). For vegetables it was 200 grams (versus an optimal level of 350 grams); for legumes it was 30 grams (versus an optimal level of 60 grams); for whole grains it was 30 grams (versus an optimal level of 130 grams); and for nuts and seeds it was 5 grams (versus an optimal level of 20 grams).

Dietary effects on brain development and health

The dietary patterns in North America are quite concerning, not only as they pertain to mental health but also in relation to neurodevelopment and brain health. For instance, Amy Reichelt and Michelle Rank reported in 2017 in *Birth Defects Research* that excessive consumption of high-fat and high-sugar junk foods during adolescence might predispose individuals to dysregulated eating and impulsive behaviors by derailing the normal adolescent maturation process in brain regions and influencing neurodevelopmental trajectories.

Additionally, Jacka and colleagues noted in 2015 that lower intakes of nutrient-dense foods (e.g., fresh vegetables, salad, fruit, grilled fish) and higher intakes of unhealthy foods (e.g., roast meat, sausages, hamburgers, steak, chips, soft drinks) were each independently associated with smaller left hippocampal volumes in healthy older adults. Notably, these relationships were independent of the following covariates: age, gender, education, labor force status, depressive symptoms and medication, physical activity, smoking, hypertension and diabetes.

In 2018, Pauline Croll and colleagues reported in the journal *Neurology* that higher intakes of vegetables, fruits, whole grains, nuts, dairy and fish and lower intakes of sugar-containing beverages were associated with larger total brain volume, gray matter, white matter and hippocampal volumes in more than 4,000 individuals in a nonclinical population free of dementia. In a similar vein, Raffaella Molteni and colleagues reported in

2002 in the journal *Neuroscience* that a high-fat and refined-sugar diet reduces levels of hippocampal brain-derived neurotrophic factor, leading to impairments in neuronal plasticity, learning and behaviors.

The hippocampus is responsible for important functions such as memory and learning. Thus, these findings regarding the association between diet quality and patterns and hippocampal volume hold significant clinical implications.

Diet as a moderator of mental health

When working with clients in clinical practice, it is imperative for counselors to actively include diet and nutrition in their clinical conceptualization as major factors contributing to states of being on the mental health continuum and leading to overall health in their clients across the life span. Indeed, diet and nutrition together constitute one of the 17 second-order factors included in the Indivisible Self, an evidence-based model of wellness established by Thomas Sweeney and Jane Myers. Wellness practices are ingrained in our professional identity as counselors. Wellness is a foundational philosophy of our profession, along with prevention and human development across the life span.

In 2015, writing in *The Lancet Psychiatry*, Jerome Sarris and colleagues coined the term *nutritional psychiatry* to promote a new field of research focused on developing a comprehensive, cohesive and scientifically rigorous evidence base to support a shift in thinking around the role of diet and nutrition in mental health. Emerging evidence supports recognition that diet patterns and diet quality influence both physical and mental health.

Jacka and colleagues reported in 2017 that early nutritional psychiatry research largely focused on individual nutrients (e.g., omega-3s) in relation to mental health. However, according to these authors, recent nutritional psychiatry research has headed toward a “whole diet” approach that acknowledges the complexities of nutrients in food, given their synergistic

nature. In 2019, Firth and colleagues also supported this approach, asserting that the relationship between healthy diet and healthy mind was unlikely to persist when examining only specific food groups.

Similarly, interest is increasing surrounding research on *lifestyle psychiatry*, a term popularized by Douglas L. Noordsy in 2019 to describe the role of lifestyle factors in the onset, prevention and treatment of mental disorders. In particular, Firth and colleagues noted that the potential impact of nutrition on mental health was gaining increasing recognition. This was due mainly to large-scale meta-analyses of randomized controlled trials suggesting that both dietary interventions and certain nutrient supplements serving as an adjunctive intervention could significantly reduce various symptoms of mental disorders such as depression and anxiety.

Although a poor-quality diet and its unhealthy patterns are consistently associated with symptoms of mental disorders, findings from randomized controlled trials suggest that diet is a modifiable factor. Results from these trials also support dietary strategies for the treatment of depression. Thus, it is important for counselors to take a holistic approach in collaboration with other health care professionals (e.g., clinical dietitians or nutritionists) to translate the evidence to action.

The need to increase our knowledge base

As mentioned earlier, wellness practices and wellness counseling are at the core of who we are as professional counselors. However, for varying reasons, who we are may not necessarily align with what we actually do in clinical practice.

In a 2020 interview with gastroenterologist Emeran Mayer, Jacka described a survey conducted in the United States in which approximately 75% of participating health care professionals revealed that they had not been trained to provide dietary consultations and

recommendations during their preservice education and training. This lack of training may also hold true for mental health professionals in the United States because diet and nutrition are not currently included in the core knowledge areas for entry-level academic counselor education training programs.

As directed by the 2014 *ACA Code of Ethics*, professional counselors must practice in a competent and ethical manner. Clinical competence must be within the scope of the counselor's training, education, knowledge and acquired skills to serve diverse individuals, families and communities. Therefore, counselors are encouraged to increase their knowledge by educating themselves about scientific evidence in relevant areas (e.g., diet and nutrition, lifestyle psychiatry, nutritional psychiatry).

This should also involve counselors familiarizing themselves with existing dietary guidelines. The Food and Agriculture Organization of the United Nations states that more than 100 countries in the world have food-based dietary guidelines. Country-specific guidelines provide culturally appropriate, evidence-based recommendations on healthy diets (see fao.org/nutrition/education/food-dietary-guidelines/en). In 2020, Opie and colleagues reported that better adherence to the Australian Dietary Guidelines may have resulted in improved depressive symptoms in more than 800 women who participated in a five-year longitudinal study.

In the United States, the 2015-2020 Dietary Guidelines for Americans (see tinyurl.com/AmericanDietaryGuidelines), developed by the Department of Health and Human Services and the Department of Agriculture, are informed by the current scientific evidence on nutrition and health. The Department of Agriculture also provides a practical tool named Choose My Plate (choosemyplate.gov) that is designed to help individuals practice following and manage a healthy diet.

Implications for counselors

Lifestyle factors such as diet play a pivotal role in human development across the life span and in mental health, particularly regarding the onset and maintenance of mental disorders such as depression and anxiety. Over the past decade, emerging evidence has suggested that diet is a factor that is more modifiable compared with other determinants (e.g., biological, genetic or environmental factors) and that it can serve as an adjunctive intervention to behavioral health care or psychopharmacological approaches.

Counselors should consider actively taking lifestyle factors, especially pertaining to diet, into account because these factors are among the most critical intervention areas when working with clients who have symptoms of a mental disorder. Before doing so, however, counselors should reflect on their clinical competence to integrate these areas with counseling and proactively seek to increase their knowledge about diet and nutrition relevant to mental health and mental disorders. ❖

Yoon Suh Moh is an assistant professor of community and trauma counseling at Thomas Jefferson University. She is a licensed professional counselor, certified rehabilitation counselor and national certified counselor with professional proficiency in English, Japanese and Korean. Contact her at yoonsuh.moh@jefferson.edu.