

# The Critical Role of Diet in the Prevention and Treatment of Mental Disorders: An Opportunity for the Naturopathic Profession to Positively Impact the Burden of Illness Using a Recently Developed Clinical Tool



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## ABSTRACT

The burden of mental illness is high, and currently available treatments do not meet the needs of all people affected. Conventional treatment options for mental disorders are not always accessible, effective, or well tolerated, and many individuals therefore seek complementary therapies. There is emerging and compelling evidence that diet is an important modifiable risk factor in the development and progression of mental illnesses, and early evidence suggests that diet modification is an effective therapeutic intervention.

However, dietary counselling in the context of mental health care is currently underutilized, including in the delivery of naturopathic care. A recently created clinical tool meant to facilitate dietary counselling in mental health care is presented along with a description of its development and a discussion of barriers. There is an opportunity for naturopathic doctors to use this tool or other resources to support individuals experiencing mental illness through dietary counselling and to be leaders in the use of diet change for the treatment of mental health conditions.

**Key Words** Nutrition, mental health, psychiatry, dietary counselling, nutritional psychiatry, naturopathic medicine, naturopathy

## INTRODUCTION

Mental illness is the leading cause of disability in Canada, with 1 in every 3 Canadians affected in their lifetime.<sup>1,2</sup> Each year, around 15% of Canadians use health services for mental health concerns, and there is an estimated economic burden of \$51 billion dollars per year.<sup>2</sup> The current model of mental health care in Canada involves treatment options that include pharmacologic and psychosocial interventions.<sup>3</sup> Pharmacological treatments can be efficacious and show evidence of improving quality of life for those suffering from mental health disorders. However, adverse side effects, patient hesitancy, and lack of efficacy among many individuals limit these treatments' potential to provide relief. Cognitive behavioural therapy and other psychotherapy approaches have proven to be efficacious and cost-effective treatment methods, but barriers such as cost and availability of service providers are significant.<sup>4</sup> It is evident that there is a need for novel or complementary mental health treatment approaches and prevention strategies.

The Canadian healthcare system is working to become more collaborative, accessible, and equitable when it comes to mental health.<sup>5</sup> The Mental Health Commission of Canada has identified opportunities for change and has developed new frameworks and strategies that include promoting mental health support across the lifespan, fostering recovery and well-being for individuals of all ages, and providing access to the right combination of services and treatment approaches.<sup>5</sup> Naturopathic doctors (NDs) and other complementary care services can help support this transition to a more collaborative and accessible model of mental health support.<sup>6</sup> NDs operate according to a model of whole health delivery.<sup>6</sup> They help improve mental health and overall well-being through evidence-based interventions while ensuring there is continuity between health services and taking the determinants of health into account.<sup>6</sup>

Many patients seek complementary or alternative care when conventional treatment options are not accessible, effective, or well-tolerated.<sup>7</sup> There is a growing body of evidence to support the role of non-pharmacologic interventions in the treatment of

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mental health disorders. Naturopathic care is often sought because of its strength in holistic assessment and management. According to a recent global survey of naturopathic practice, mental health concerns account for 11% of patient visits, putting it in the most prevalent category of health conditions seen in naturopathic medicine.<sup>8</sup> NDs use a variety of modalities to support mental well-being, including dietary supplements,<sup>9</sup> exercise prescription,<sup>10</sup> herbal medicine,<sup>11</sup> acupuncture,<sup>12</sup> and homeopathy,<sup>13</sup> each with mounting evidence. However, the authors of this paper suggest that dietary counselling as a tool for mental health promotion is underutilized within the naturopathic profession and represents an enormous opportunity for NDs to improve the mental health of their patients as well as lead a shift in Canadian mental health care that is focused on health promotion (rather than symptom management), supportive of patient self-efficacy, and, ultimately, impactful in lowering the burden of mental illness in our society. This paper will review evidence on the relationship between diet and mental health and present a newly developed clinical tool which can be used to facilitate dietary counselling as a therapeutic approach to mental health care in clinical practice.

### Observational Evidence on the Role of Nutrition in Mental Illness Pathogenesis

The last decade has seen the emergence of mounting observational evidence that nutrition plays a role in the development of mental illness. One systematic review of prospective observational studies that looked at the relationship between diet quality and depression risk found that higher diet quality (regardless of the diet type) was associated with a lower risk of symptoms of depression at a later follow-up time.<sup>14</sup> This review also found that a diet with a lower inflammation score was associated with a lower risk of depressive symptoms.<sup>14</sup> This relationship occurred in a linear, dose-dependent fashion,<sup>14</sup> suggesting that even small improvements may be associated with a protective effect. A recent systematic review of observational studies looking at the relationship between the Mediterranean diet and Axis I disorders (anxiety, depression, eating disorders, schizophrenia, etc.) found that this diet pattern was associated with reduced symptoms of Axis I disorders, especially depression and anxiety.<sup>15</sup> An additional recent systematic review and meta-analysis of observational studies that looked at ultra-processed food consumption and mental health outcomes showed that increased consumption of processed foods was associated with increased odds of anxiety and depressive symptoms.<sup>16</sup> It is important to note that while this evidence highlights a relationship between diet and mental health, this relationship is recognized as being bidirectional in nature. Because some of the observational studies included in the systematic reviews described were cross-sectional, casual relationships cannot be definitively identified. Cross-sectional studies measure exposures and outcomes at the same time, making it hard to definitively identify a cause-and-effect relationship. In contrast, cohort studies measure baseline diet exposures and follow participants for a period of time, monitoring for the development of a disorder; as such, they are better able to identify causal pathways. Many cohort studies have identified a relationship between

poor baseline diet quality and the subsequent development of mental illness,<sup>14</sup> suggesting that diet quality is having an impact on mental health outcomes; however, in order to understand the therapeutic potential of dietary modification among individuals experiencing these conditions, it is essential to explore the experimental research that has been conducted.

### Experimental Evidence on the Role of Nutrition in Mental Health Treatment

The past 5 years has seen the emergence of several high-quality randomized clinical trials on the role of diet changes in the treatment of mental health disorders. The “SMILES” trial in Australia was a randomized controlled trial that measured the impact of dietary counselling for adults with major depressive disorder.<sup>17</sup> Fifty-six adults with moderate to severe depression and a poor-quality baseline diet completed the 12-week trial. They were randomized to a diet support group (n=31) or a social support group (n=25) and depression was assessed as a primary outcome using the Montgomery–Åsberg Depression Rating Scale (MADRS).<sup>17</sup> The dietary support consisted of nutritional counselling from a clinical dietician that included motivational interviewing, mindful eating habits and goal setting to help implement a modified Mediterranean diet. The dietary support group had a significantly greater improvement on the MADRS than the social support group (p<0.001), with a number needed to treat of 4.1.<sup>17</sup> At the conclusion of the intervention, 1 in 4 participants no longer met the criteria for major depressive disorder. Economic evaluation of this study revealed that the dietary intervention resulted in a lower health sector cost and societal cost as a result of less frequent healthcare visits and lower cost of unpaid productivity.<sup>18</sup> This study was the first to show that dietary improvement can be an efficacious, cost-effective option for the treatment of depression.

Another study called HELFIMED assessed the effect of a Mediterranean-style diet intervention in combination with fish oil supplementation in a group of adults with depression.<sup>19</sup> Ninety-five adults with self-reported depression were randomized into two groups: one received Mediterranean-diet cooking workshops for 3 months and fish oil supplementation for 6 months, while the comparison group attended social support groups for 3 months. Blood samples were taken and mental health, quality of life, and dietary questionnaires administered at baseline, 3 months, and 6 months.<sup>19</sup> Results showed that the Mediterranean-diet group had a greater reduction in depression symptom severity and improvement in quality of life when compared with the social support group. Interestingly, while the dietary counselling component lasted 3 months, the improvements observed in that time were maintained at the 6-month follow-up.<sup>19</sup> A gap in the current research is the lack of experimental evidence on the effects of dietary counselling for the treatment of anxiety disorders; however, this gap is currently being addressed by the EASe-GAD study. This wait-list controlled pilot trial is the first trial to explore the effects of dietary counseling combined with omega 3 supplementation for adult women with generalized anxiety disorder.<sup>20</sup> This study is currently in progress.

## Mechanisms

Several mechanisms have been identified which might explain the relationship between diet patterns or constituents and mental health outcomes.<sup>21</sup> While a comprehensive review of these mechanisms is beyond the scope of the present article, a brief summary is presented.

Dietary glycemic index has been recognized as an important factor in mental health. The brain cannot make or store sugar. Therefore, it relies on blood sugar as a source of energy.<sup>22</sup> When blood sugar is poorly regulated, hypoglycemia may occur; hypoglycemia symptoms overlap significantly with the symptoms of anxiety and depression and may exacerbate mental health symptoms. Cohort studies have shown an association between a higher glycemic index diet and both higher odds of depression and higher depression symptom scores.<sup>22</sup> In a meta-analysis, anxiety was also found to be associated with poor glycemic control.<sup>23</sup>

Dietary fibre also appears to be a constituent that impacts mental health. In addition to improving glycemia, dietary fibre increases the diversity of the gut microbiome, which in turn directly affects the brain through the microbiota–gut–brain axis, a complex bidirectional pathway that involves the production of a range of neurotransmitters and other neuroactive substances and modulates neurogenesis, inflammation, immune activation and hypothalamus–pituitary–adrenal axis activity.<sup>24</sup>

Adequate protein intake provides essential building blocks for the synthesis of neurotransmitters. In experimental studies, the depletion of the amino acid tryptophan has been shown to induce depression in susceptible individuals.<sup>25</sup> Dietary fats play a critical role in cell signalling, and the relative proportion of fatty acids in the body impacts inflammation levels.<sup>26</sup> Inflammation is emerging as a highly important and modifiable risk factor in the development and progression of depression and anxiety symptoms.<sup>27</sup> Observational data show increased inflammation levels in some people with mental disorders, and the experimental administration of inflammatory cytokines induces mood disturbance.<sup>28</sup> Early evidence suggests that anti-inflammatory agents may be able to mitigate depression symptoms.<sup>29</sup> It has been established that the Mediterranean diet and other healthy diet patterns decrease systemic inflammation, likely through the effects of phytochemicals found in vegetables, fruit, herbs and spices, fibre, and omega-3 or omega-9 fatty acids.<sup>30,31</sup> One proposed mechanism mediating the effects of inflammation on mental health is the kynurenine pathway. In the presence of inflammation, tryptophan that would be otherwise used for serotonin synthesis is used to produce quinolinic acid and kynurenic acid instead.<sup>32</sup> While the mechanisms connecting dietary factors and mental health are just emerging, they add to our understanding of how diet modification might cause mental health changes.

## Barriers

It is evident that adequate nutrition is a critical lifestyle factor that contributes to both physical and mental health, yet dietary counselling is significantly underutilized within a range of health-care sectors.<sup>33,34</sup> Nutritional interventions have far-reaching and well-documented beneficial effects on a wide range of health

outcomes,<sup>35</sup> however, due to the nature of implementing behavioural change, barriers to utilization exist.

One of the barriers limiting the use of dietary counselling in mental health care may be health professionals' educational and knowledge gaps. A recent international survey explored the opinions of psychiatrists, psychologists, and psychotherapists on nutritional medicine literacy.<sup>36</sup> Results showed that while health professionals were interested in using nutrition in their mental health care practice and see it as a critical pillar in their biopsychosocial care, education and adequate knowledge of nutrition were reported to be lacking.<sup>36</sup>

An additional barrier to implementing nutritional medicine in practice is the difficulty associated with patient behaviour change. Behavioural changes require motivation, consistency, time, skill, and effort on the part of the patient, which is often harder than taking a supplement or medication. It is also important to note that depression and other mental health issues involve cognitive and behavioural symptoms that can affect motivation, which can also present as a barrier to behavioural change.<sup>37</sup> An Australian study in 2019 conducted interviews with general practitioners (GPs) to explore their perceptions surrounding implementing lifestyle behavioural changes in practice.<sup>38</sup> Themes that emerged were centred on general practitioners' lack of time and tools to initiate behavioural change, as well as the perception that behavioural change will not be implemented or elicit benefits in their patients.<sup>38</sup> That being said, the importance of lifestyle behaviours was recognized and was identified as an aspect of primary care that GPs wish to improve.<sup>38</sup> In a qualitative study conducted in 2020, patients were asked about their opinions on behavioural change in practice after recent appointments with their GPs.<sup>39</sup> Themes that emerged were that patients wish to discuss lifestyle behaviours more frequently, and that discussions around behavioural change are generally welcomed and expected.<sup>39</sup> Therefore, the concern that dietary counselling may be poorly received by patients may not be accurate.

Another barrier that is often presented to the author team when discussing the potential role of diet counselling as a treatment for mental disorders was cost. As part of the SMILES study cost effectiveness analysis, researchers compared the cost of participants' baseline diets with the SMILES diet; they found that the recommended diet was less costly than the participants' baseline diet.<sup>17</sup> This may have been attributable to both the decrease in processed/prepared foods and meat products and the increase in inexpensive plant-based protein sources and more time spent cooking at home.

While dietary counselling and behaviour change are challenging, they are feasible. In the studies described earlier in this article, participants with moderate to severe depression were able to make significant improvements in their dietary habits when provided with consistent support, guidance, and accountability from a qualified health professional using behaviour change strategies such as goal setting and motivational interviewing.<sup>17,19</sup>

## A Recently Developed Tool to Support Diet Change Among Individuals Experiencing Mental Illness

In response to some of these barriers, and in an effort to support mental health professionals' engagement with dietary counselling, a project was completed to develop a clinical tool and clinician

guide.<sup>40</sup> Two scoping reviews inspired this project. One explored all of the research on the relationship between dietary patterns or constituents and anxiety while the other explored this topic with respect to psychotic disorders.<sup>41,42</sup> These reviews sought to systematically identify and synthesize all of the evidence on these topics. In total, the reviews incorporated the findings of 1,541 and 822 articles, respectively. Both found an association between lower disorder incidence or symptom severity and higher intake of vegetables and fruit, omega-3 fatty acids, and several micronutrients and phytochemicals. Associations were found between a higher incidence or symptom severity and high fat diets, inadequate tryptophan and dietary protein, and high intake of sugar and refined carbohydrates. While this evidence is considered preliminary due to a large proportion of pre-clinical and observational studies, these findings are consistent with previously published literature on the principles of healthy eating. Despite these meaningful results, it is known that the incorporation of new evidence into clinical care is generally slow<sup>43</sup> and the authors have undertaken a knowledge translation project aimed at increasing the use of this evidence in clinical care.<sup>40</sup>

Due to emerging evidence that diet is likely a significant, modifiable risk factor for mental health concerns and the dearth of existing tools and educational materials, the objective of the project was to develop a worksheet and clinician guide to facilitate nutritional counselling for those with mental health conditions.<sup>40</sup> The process of creating the tool began with a draft created by the research team using evidence from the scoping review, along with Canada's Food Guide.<sup>44</sup> The creation of the draft worksheet was guided by social cognitive theory, which highlights the importance of goal setting, social norms, self-efficacy, and self-control.<sup>40</sup> Previous research on implementing dietary changes in those with mental illness was also considered while creating the draft.<sup>40</sup> The worksheet presents dietary recommendations in a simple format with clear instructions for the patient. It also addresses the commonly cited financial barrier by highlighting inexpensive healthy food options.<sup>40</sup> The worksheet has a positive and encouraging tone and includes interactive components and opportunities to promote engagement, action planning, and goal setting.

This worksheet draft and accompanying clinician guide were then pilot-tested during 75-minute virtual focus groups with psychiatrists and 15- to 30-minute phone interviews with individuals with lived experience with psychosis.<sup>40</sup> The participants rated the worksheet on a 3-point scale for how encouraging, useful, attractive, informative, interesting, trustworthy, and easy-to-understand they perceived it to be. There were also open-ended questions to gather qualitative feedback. All interviews were recorded and transcribed. Based on the interview feedback, the clinician guide and worksheet were revised.<sup>40</sup> The final product was shared with the participants, who reported that it satisfied their needs and was adequately modified. The worksheet (in English and French, Appendices 1 and 2) and clinician guide (Appendix 3) serve as a resource to support healthcare providers in incorporating dietary counselling into a treatment protocol for mental health concerns.

When considering the use of dietary counselling as a treatment strategy, it is important to highlight some characteristics of the participants involved in the studies reporting therapeutic benefit.

In the SMILES and HELFIMED studies, participants were eligible if their baseline diet was suboptimal. As such, diet improvement may not yield the same degree of benefit among individuals already eating a high-quality diet. With respect to other treatments, it is evident that dietary counselling can be used adjunctively. In the SMILES study, 82% of participants were using psychopharmaceuticals, psychotherapy, or a combination of the two while participating, suggesting that this strategy might be useful regardless of other interventions used.<sup>17</sup>

## CALL TO ACTION AND CONCLUSIONS

The burden of mental illness is high, and currently available treatments do not meet the needs of all people affected. There is emerging and compelling evidence that diet is an important modifiable risk factor in the development and progression of mental illnesses, and early evidence suggests that diet modification is an effective therapeutic intervention that is currently underutilized in mental health care. While perceived barriers such as cost and patient resistance exist, they are not adequately supported by evidence. There is an opportunity for NDs to be leaders in the use of dietary change for the treatment of mental health conditions. Naturopathic doctors have extensive training in clinical nutrition; additionally, longer patient visits allow sufficient time for nutrition education and behaviour change strategies, such as goal setting, action planning, identification of barriers, and problem solving. Naturopathic practice has an emphasis on lifestyle and behavioural change, and the use of dietary change for the treatment of mental health conditions is highly consistent with the philosophy of naturopathic medicine and the principles of treating the root cause and creating the conditions for health. Overall, the naturopathic profession is well positioned to improve the lives of those with mental health conditions through dietary counselling. Our intent is to encourage NDs to utilize this new tool to facilitate dietary counselling with people experiencing mental illness and lead a shift in the delivery of mental health care in Canada.

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### CONFLICTS OF INTEREST DISCLOSURE

We have read and understood the *CAND Journal's* policy on conflicts of interest and declare that we have none.

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APPENDIX 1: EATING WELL FOR MENTAL HEALTH WORKSHEET<sup>a</sup>

# Eating well for mental health

## A tool to support people impacted by mental illness

The food we eat affects our body and mind. You can make healthier choices that will improve your health.

Why is healthy eating important to me? \_\_\_\_\_

Read the recommendations below. Circle foods that appeal to you.



### Choose complex carbs

- Whole grain bread, pita, tortilla, or pasta instead of white
- Instead of white rice, try brown rice, wild rice, quinoa, oats, millet
- Vegetables like potatoes, sweet potatoes, yams, corn, squash, cassava



### Choose healthy fats like olive oil and sources of omega-3

- Eat fish and seafood (oysters, mussels, shrimp) at least 3 times per week
- Add nuts, seeds or avocado to meals, or enjoy as a snack
- Decrease deep fried foods (French fries, fried chicken)



### Reduce highly processed foods and sugar

- Drink water instead of pop, juice and iced-tea
- Have cookies, cakes, muffins, ice cream, candy as a special treat, not every day



### Add vegetables & fruits to meals and snacks

- Try to include different colours
- Add salad or veggies and dip to meals. Explore frozen and canned vegetables
- Try fruit that is fresh or frozen as a snack or dessert



### Eat protein-rich foods throughout the day

- Try eggs, fish, seafood, chicken, turkey, beans, lentils, nuts, seeds, tofu, cheese, meats and wild game

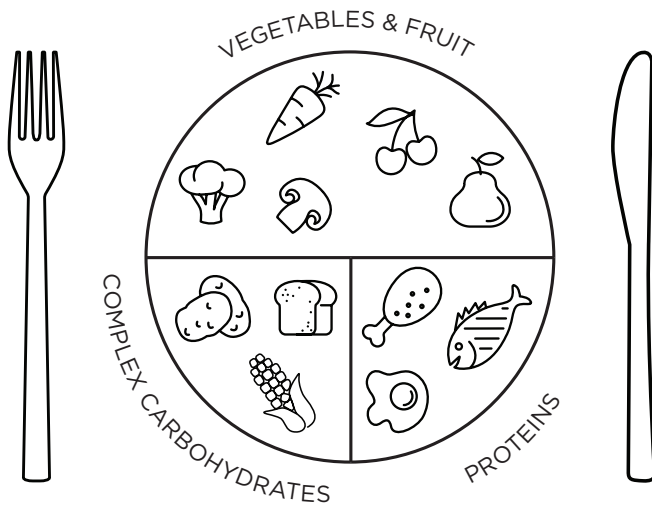


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**Two Day Sample Meal Plan:**

	<b>Day 1</b>	<b>Day 2</b>
<b>Breakfast</b>	Oatmeal/ porridge with nuts or seeds and berries	Eggs with whole grain toast or potatoes and fruit
<b>Lunch</b>	Salad with protein-rich food and healthy fat	Turkey sandwich with side of sliced cucumbers and carrots
<b>Dinner</b>	Whole grain pasta with tomato sauce and added ground chicken and vegetables	Brown rice stir-fry with shrimp or tofu and frozen vegetables
<b>Snack or Dessert</b>	Vegetable sticks with hummus or guacamole	Plain yogurt with fruit

I'm going to try / I might like:

---

**Healthy eating doesn't need to cost more:**



<b>Lower Cost Healthy Foods</b>	<b>Price (in Canadian dollars)</b>
Frozen vegetables and fruit	\$3-4 per bag (5 or more servings)
Canned fish and seafood (tuna, oysters, salmon, mussels, sardines)	\$1.50-4 per can (1-2 servings)
Canned beans and lentils	\$1-2 per can (2 servings)
Eggs	\$3-4 per dozen (6 servings)
Whole grains in large packages	\$5-6 per bag (5 or more servings)
Tofu	\$3-4 per package (3 servings)

**Tip:** Shop at budget grocery stores, look for sales and stock up on non-perishable foods



**My goals**

Habit I would like to continue: \_\_\_\_\_

Changes I would like to make: \_\_\_\_\_

Who can help me achieve these goals? \_\_\_\_\_

**Preparing food for yourself and making healthy food choices is self-care. Small changes add up. Eat and prepare meals with others.**

*Revised May 2023*

<sup>a</sup> Created by modifying Supplemental Materials from "Design and pilot evaluation of an evidence-based worksheet and clinician guide to facilitate nutrition counselling for patients with severe mental illness," by L. LaChance, M. Aucoin & K. Cooley, BMC Psychiatry 21, 556 (2021), <https://doi.org/10.1186/s12888-021-03575-7>. Copyright 2021 by LaChance, Aucoin, Cooley. Licensed under CC BY 4.0. Adapted with permission.

APPENDIX 2 : BIEN MANGER POUR SA SANTÉ MENTALE<sup>b</sup>

# Bien manger pour sa santé mentale

## Un outil pour aider les personnes touchées par une maladie mentale

La nourriture que nous mangeons affecte notre corps et notre esprit. Vous pouvez faire des choix plus sains qui amélioreront votre santé.

Pourquoi une alimentation saine est-elle importante pour moi? \_\_\_\_\_

Lisez les recommandations ci-dessous. Encerclez les aliments qui vous plaisent.



### Choisissez des glucides complexes

- Pain, pita, tortilla, ou pâtes de grains entiers au lieu de blanc
- Au lieu du riz blanc, essayez le riz brun, riz sauvage, quinoa, avoine, millet
- Des légumes tels que des pommes de terre, patates douces, ignames, maïs, courge, manioc



### Choisissez de bons gras comme l'huile d'olive et des aliments riches en oméga-3

- Mangez du poisson et des fruits de mer (huîtres, moules, crevettes) au moins 3 fois par semaine
- Ajoutez des noix, des graines ou de l'avocat à vos repas ou savourez en collation
- Diminuez les aliments frits (frites, poulet frit)



### Réduisez les aliments ultras transformés et le sucre

- Buvez de l'eau au lieu de boissons gazeuses, jus et thé glacé
- Mangez des biscuits, gâteaux, muffins, crème glacée, bonbons comme friandise spéciale, pas tous les jours



### Ajoutez des légumes et des fruits à vos repas et à vos collations

- Essayez d'inclure différentes couleurs
- Ajoutez à vos repas une salade ou des légumes accompagnés d'une trempette. Découvrez les légumes surgelés et en conserve
- Essayez des fruits frais ou surgelés en collation ou dessert



### Mangez des aliments riches en protéines durant la journée

- Essayez les œufs, le poisson, les fruits de mer, le poulet, la dinde, les légumineuses, les graines, le tofu, le fromage, la viande et le gibier sauvage



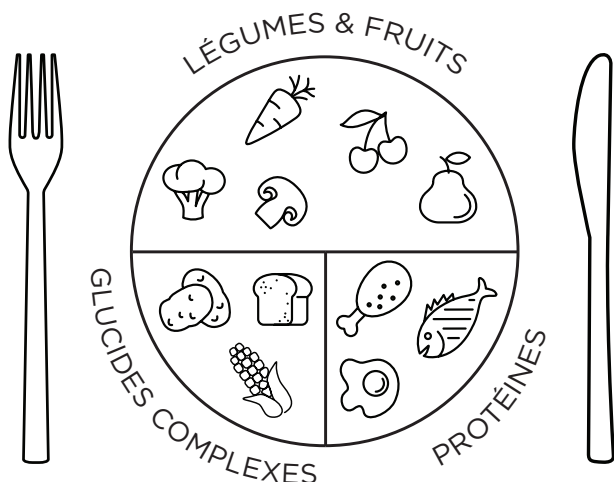
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Je vais essayer / je pourrais aimer:  
 \_\_\_\_\_

**Exemple de plan de repas de deux jours:**

	Jour 1	Jour 2
<b>Déjeuner</b>	Gruau accompagné de noix ou de graines, et de petits fruits	Oeufs avec pain grillé ou pommes de terre et fruit
<b>Dîner</b>	Salade accompagnée d'un aliment riche en protéine et bon gras	Sandwich à la dinde accompagné de tranches de concombre et de carottes
<b>Souper</b>	Pâtes de blé entier accompagnées de sauce tomate, de poulet haché et de légumes	Sauté de riz brun aux crevettes ou tofu et légumes surgelés
<b>Collation ou dessert</b>	Légumes en bâtonnets avec houmous ou guacamole	Yogourt nature accompagné de fruits

**Une alimentation saine n'a pas besoin de coûter plus cher**



Aliments sains à moindre coût	Prix (dollars canadiens)
Légumes et fruits surgelés	3-4\$ par sac (5 portions ou plus)
Poisson et fruits de mer en conserve (thon, huîtres, saumon, moules, sardines)	1.50-4\$ par boîte de conserve (1-2 portions)
Légumineuses en conserve	1-2\$ par boîte de conserve (2 portions)
Oeufs	3-4\$ la douzaine (6 portions)
Grains entiers en grande quantité	5-6\$ par sac (5 portions ou plus)
Tofu	3-4\$ par paquet (3 portions)

**Truc:** Magasinez dans des épiceries économiques, recherchez des produits à prix réduit et faites le plein d'aliments non périssables



**Mes objectifs**  
 Habitude que j'aimerais continuer: \_\_\_\_\_  
 Changements que j'aimerais faire: \_\_\_\_\_  
 Qui peut m'aider à atteindre ces objectifs? \_\_\_\_\_

**Cuisiner soi-même et faire des choix alimentaires sains, c'est prendre soin de soi. Les petits changements s'additionnent. Manger et préparer des repas avec les autres.**

*Révisé en mai 2023*

<sup>b</sup> Created by modifying Supplemental Materials from "Design and pilot evaluation of an evidence-based worksheet and clinician guide to facilitate nutrition counselling for patients with severe mental illness," by L. LaChance, M. Aucoin & K. Cooley, BMC Psychiatry 21, 556 (2021), <https://doi.org/10.1186/s12888-021-03575-7>. Copyright 2021 by LaChance, Aucoin, Cooley. Licensed under CC BY 4.0. Adapted with permission.

APPENDIX 3: EATING WELL FOR MENTAL HEALTH CLINICIAN GUIDE<sup>c</sup>

# Eating well for mental health Clinician Guide

## Overview:

- **Objective:** Integrate basic nutrition psychoeducation into psychiatric care
- **Who is this handout for?** Individuals with severe mental illness or schizophrenia spectrum disorders (SSD) during periods of relative clinical stability. This tool has been developed to be delivered by a health care professional without formal nutrition training. Introduce this handout when you would normally discuss health behaviours such as sleep, substance use or physical activity.
- **Reference for handout content:** Aucoin M, LaChance L, Cooley K, Kidd S. Diet and psychosis: a scoping review. *Neuropsychobiology*. 2020;79(1-2):20-42.

## Suggested Agenda:

### Page 1

- Ask the patient for permission to discuss their diet and provide some basic rationale for doing so. You could read the introductory statement. If the patient declines, consider asking again at a later date.
- Ask “Why is healthy eating important to you?” to increase motivation and engagement.
- As you review the 5 recommendations, prompt the patient to circle options that appeal to them.
- Provide rationale for recommendations as per the table below if indicated.

### Page 2

- **Sample plate:** This is a visual representation of the recommended relative proportions of different food categories in an ideal meal.
- **Sample meals:** Review sample meals with patient.
- Prompt patient to generate an idea of a meal that they could try based on the sample plate or sample meals. Record this on the handout.
- **Healthy eating doesn't need to cost more:** Discuss how spending \$10 could allow them to include several items from the list. Consider pointing out the relatively increased cost of processed, convenience and restaurant foods. Direct patient to a social worker if food insecurity is a concern.
- **My goals:**
  - *Habit I would like to continue:* Encourage patient by acknowledging and celebrating small successes to increase motivation and self-efficacy.
  - *Changes I would like to make:* Goal setting has been shown to increase accountability and likelihood of success. Consider choosing one of the 5 recommendations from page 1 as a goal.
  - *Who can help me achieve these goals?* This prompt serves to help mobilize others who can support, facilitate and hold the patient accountable to dietary change. Consider family members, friends, case manager, family doctor, dietitian, social worker, nurse, OT or others.
- **Closing Statement:** When possible, aim to keep messaging positive, celebrate small victories and provide encouragement.

**Practical Considerations:**

- Pace yourself: Implementing dietary changes is a gradual process and will not occur after one session. Consider setting one goal in the first session and revisiting the topic of nutrition at later times to follow up on the goal and make additional changes.
- Behaviour modification: Draw from your existing skills in behaviour modification. If you have knowledge of behavioural activation, motivational interviewing or another approach, remember they can be applied to dietary change as well.
- Cultural sensitivity: Consider asking patients about their culture's traditional foods. Many meals and recipes can be adapted to use grains, meat, bread-products, vegetables and spices from different cultures.
- Therapeutic diets: A small body of literature supports special diets as a therapeutic option for SSD. If patients are interested in gluten-free or ketogenic diets, please refer them to a nutrition professional.
  - Kelly DL, Demyanovich HK, Rodriguez KM, Cihakova D, Talor MV, McMahon RP, Richardson CM, Vyas G, Adams HA, August SM, Fasano A. Randomized controlled trial of a gluten-free diet in patients with schizophrenia positive for antigliadin antibodies (AGA IgG): a pilot feasibility study. *Journal of psychiatry & neuroscience*: JPN. 2019 Jul;44(4):269-76.
  - Sarnyai Z, Palmer CM. Ketogenic Therapy in Serious Mental Illness: Emerging Evidence. *International Journal of Neuropsychopharmacology*. 2020 Jul;23(7):434-9.
- Dietary assessment: If you are interested in conducting a basic dietary assessment, consider asking any of the following questions prior to reviewing the 5 recommendations on page 1:
  - What is your usual pattern of meals and snacks? Do you cook at home or buy prepared foods?
  - Take me through a typical day of eating.
  - Do you avoid any foods?
  - How many servings of vegetables do you eat per day?
  - How many times per week do you eat fish or seafood?
  - What beverages do you usually drink? (look for hidden sources of sugar)
- Portion Sizes: For guidance, search "Zimbabwe Hand Jive"

Recommendation	Supporting Evidence	Mechanism of Action
Choose complex carbs	-Observational studies have reported higher intake of refined carbohydrates and lower intake of fibre in individuals with SSD	-Complex carbohydrates are higher in fibre -A diet rich in fibre can improve blood glucose regulation (Level 1) and support a healthy gut microbiome composition (Level 1) -A healthy gut microbiome can support mental and physical health via the gut-brain axis and by modulating systemic inflammation; probiotic supplementation in patients with SSD has shown benefit (Levels 2)
Choose healthy fats like olive oil and sources of omega-3	-Observational studies have reported low levels of essential fatty acids such as omega-3 in individuals with SSD -Intervention studies of omega-3 fatty acid supplements have demonstrated efficacy in early psychosis (Level 2), clinical high risk of psychosis (Level 2), and metabolic outcomes in chronic schizophrenia (Level 1)	-Dietary fatty acids are incorporated into neuronal cell membranes and play important roles in modulating membrane fluidity and signal transduction -Inflammation is relevant to the pathophysiology of SSD. Omega-3 fatty acids have anti-inflammatory properties.
Reduce highly processed foods and sugar	-Observational studies have reported higher intake of processed food and lower diet quality in individuals with SSD -Intervention studies aimed at improving diet quality (as part of a multi-component interventions targeting health behaviours) have shown benefit for mental health outcomes in individuals with SSD (Level 2)	-Processed foods tend to be higher in sugar and lower in fibre and micronutrients. A high intake of processed foods can displace more nutrient-dense foods from the diet.
Add vegetables & fruits to meals and snacks	-Observational studies have reported low intake of vegetables and fruit in individuals with SSD -Observational studies have reported low levels of vitamin C and folate in individuals with SSD. -Intervention studies of folic acid in individuals with SSD have reported reduced negative and general symptoms of schizophrenia (Level 1)	-Vegetables and fruits provide micronutrients such as folate and vitamin C as well as fibre, antioxidants and phytonutrients -Human and animal studies suggest that improvements in SSD symptoms in response to vegetable or phytonutrient supplementation are mediated by a reduction in inflammation and oxidative stress
Eat protein-rich foods throughout the day	-Intervention studies of essential amino acid supplements have reported benefit on positive, negative, general (Level 1) and cognitive (Level 2) symptoms of SSD -Observational studies have reported low levels of zinc and vitamins B12 and B6 in individuals with SSD -Intervention studies of zinc supplements have reported benefit on positive and negative symptoms of SSD (Level 2) -Intervention studies of vitamins B6 and B12 have reported benefit on general symptoms of SSD (Level 1)	-Insufficient dietary protein consumption leads to deficiency in essential amino acids which cannot be produced by the body. Protein rich foods are also important sources of zinc, vitamin B12 and vitamin B6. -Essential amino acids serve important biological roles such as neurotransmitter synthesis and NMDA receptor modulation

Level of evidence 1 (highest) to 5 (lowest) ranked according to OCEBM Levels of Evidence Working Group\*. "The Oxford Levels of Evidence 2". Oxford Centre for Evidence-Based Medicine. <https://www.cebm.ox.ac.uk/resources/levels-of-evidence/ocedb-levels-of-evidence>

<sup>c</sup> From "Design and pilot evaluation of an evidence-based worksheet and clinician guide to facilitate nutrition counselling for patients with severe mental illness," by L. LaChance, M. Aucoin & K. Cooley, BMC Psychiatry 21, 556 (2021), <https://doi.org/10.1186/s12888-021-03575-7>. Copyright 2021 by LaChance, Aucoin, Cooley. Licensed under CC BY 4.0. Adapted with permission.