Enhancing Quality and Utilization in Psychosis (EQUIP)

Wellness Program for Patients with Severe Mental Illness
MANUAL

Amy N. Cohen, PhD  Kirk McNagny, MD
Alexander S. Young, MD, MSHS  Julia Yosef, MA
Tobi Levine, MPH, RD

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Table of Contents

Executive Summary .............................................................................................................. 3
Treatment Guideline Synopsis for Weight .............................................................................. 4
Overview of Weight Issues in Patients Treated for Psychosis .............................................. 5
  Weight Gain Associated with Antipsychotic Medications .................................................. 5
  Medical Consequences of Being Overweight .................................................................. 6
  Pharmacologic Approaches which May Assist with Weight Loss ................................... 7
Wellness Sessions .............................................................................................................. 11
Assessment and Referral to the Wellness Program .............................................................. 11
Important Notes for the Wellness Sessions ......................................................................... 12
Session 1: Increase knowledge about health problems associated with poor diet .............. 13
Session 2: Increase knowledge about food pyramid and portion sizes ............................... 13
Session 3: Increase knowledge about food pyramid and portion sizes, continued ............. 13
Session 4: Increase knowledge regarding foods to be increased: Fiber ............................. 14
Session 5: Increase knowledge regarding foods to be increased: Water ............................. 14
Session 6: Increase knowledge regarding the importance of exercise ............................... 14
Session 7: Increase knowledge regarding foods to be decreased: Fat and Cholesterol ...... 14
Session 8: Starting Exercise ................................................................................................ 15
Session 9: Increase knowledge regarding foods to be limited: Sugars ............................... 15
Session 10: Increase walking as an exercise ......................................................................... 16
Session 11: Learn ways to control hunger .......................................................................... 16
Session 12: Increase knowledge regarding foods to be limited: Salt and Sodium; Discuss
  Fast Food restaurants ........................................................................................................ 16
Session 13: Discuss expectations for changing your eating and exercise lifestyle ................. 17
Session 14: Increase knowledge about the importance of avoiding alcohol ....................... 17
Session 15: Fitting Exercise into Daily Routine .................................................................... 18
Session 16: Review and Summary ....................................................................................... 18
References ............................................................................................................................ 19
Appendices ............................................................................................................................ 22
  Appendix A: BMI Index Table ......................................................................................... 22
  Appendix B: Knowledge Assessment .................................................................................. 23
  Appendix C: Portion Size Guide ........................................................................................ 26
Executive Summary

The Wellness Program described in this manual was conceived as a direct result of the EQUIP research project (PI: Alexander Young, MD). The EQUIP project (“Evaluating Quality and Utilization in Psychosis”) was funded by the Department of Veterans Affairs Health Services Research and Development Service (VA HSR&D) to develop, implement and evaluate a collaborative care model for schizophrenia. EQUIP has been implemented at the Greater Los Angeles Healthcare System and the Long Beach Healthcare System in close collaboration with the VA Desert Pacific Mental Illness Research, Education and Clinical Center (MIRECC; www.mirecc.org).

The EQUIP study

The collaborative care model which is being tested in EQUIP is designed to improve treatment though assertive management of care, involvement and education of caregivers, and feedback of clinical information to clinicians. The model extends proven illness self-management approaches to family members and other caregivers, since these individuals are a critical component of successful treatment for schizophrenia. It creates a collaborative environment within which psychiatrists are responsible for guideline-concordant prescribing, and case managers are responsible for ensuring access to needed treatment services. By implementing a collaborative care model, the project targets key problems in care identified in previous studies of treatment quality in schizophrenia (failure to coordinate and monitor care for individual patients, lack of attention to illness self-management skills, and a minimal availability of clinical information).

By the study mid-point, EQUIP revealed that obesity (a common side-effect of newer antipsychotic medications) was a serious problem. At Long Beach, the mean BMI was 28.7 and 45% of patients met criteria for obesity. At GLA, the mean BMI was 27.4 and 35% of patients were obese. Although local managers, mental health clinicians, and nutritionists believed strongly in the need for targeted services for obesity, there were no treatment resources available at these sites. As a result, the EQUIP team developed this standardized protocol for wellness services specifically designed for patients with severe mental illness (SMI). Wellness program sessions rely heavily on material from two sections of the Solutions for Wellness Group Program: (1) Fitness and Exercise and (2) Nutrition, Wellness, and Living a Healthy Lifestyle.

Key Individuals in the Wellness Program

There are three key individuals who are the integral to the success of this Wellness Program: the patient’s treating clinicians (psychiatrist and case manager), the clinical staff running the wellness groups, and the nutritionist. Psychiatrists should be alerted to address weight problems in their medication treatment and to utilize guideline-concordant approaches to switch to a medication with less weight gain liability or add medications that can reduce weight gain. A treatment guideline synopsis used in EQUIP and a full literature review which immediately follow this Executive Summary can both be of help in deciding the best medication treatment regime to address weight issues. Case managers can assist in lifestyle changes and ongoing support and encouragement. The clinical staff running the groups provides psychoeducation and social support in a group format. Nutritionists, trained to work with this specialized population, can assist in running groups, provide ongoing consultation to clinicians and clinical staff, and provide individualized interventions for particular patients (including food diaries, meal planning, etc.).
Treatment Guideline Synopsis for Weight Gain

Weight gain is the most important side-effect of the second generation antipsychotic medications. Being overweight places an individual at increased risk for diabetes, hyperlipidemia, morbidity and death. Given their high risk for obesity, all patients with schizophrenia should have their weight monitored. It is helpful to monitor Body Mass Index (BMI), which equals an individual’s weight in kilograms divided by the square of their height in meters. A BMI calculator is available by clicking on www.nhlbisupport.com/bmi/bmicalc.htm. Normal BMI is between 18.5 and 25, overweight BMI between 25 and 30, and a BMI above 30 indicates obesity. People with a BMI between 19 and 22 live the longest.

Weight gain should be detected early so that action can be taken before the patient is very overweight. Antipsychotic medications differ in the severity with which they cause weight gain. The GREATEST potential for weight gain occurs with clozapine and olanzapine. These cause short-term weight gain that averages about 10 pounds, and long-term weight gain that can be much greater. MODERATE potential for weight gain occurs with risperidone, quetiapine, chlorpromazine and thioridazine. The LEAST potential for weight gain occurs with aripiprazole, ziprasidone, and other first generation antipsychotic medications.

Switching to an antipsychotic medication with less potential for weight gain is the most effective strategy. A number of pharmacologic strategies have been proposed that consist of adding an augmenting medication, such as topiramate or orlistat. This may be helpful in some patients. If a patient is taking a concomitant medication that causes substantial weight gain, such as valproate or paroxetine, one should consider discontinuing it.

A cornerstone of weight management is dietary control and exercise. Overweight patients should receive ongoing counseling regarding control of diet, plus consultation from a nutritionist. Simple approaches, such as low-carbohydrate diets, are likely to be more effective than complex approaches, such as calorie counting. A program for increasing activity and exercise should be strongly considered, with consultation from physical therapy and wellness programs.

References & For More Information:
BMI calculator & tables: http://www.nhlbisupport.com/bmi/bmicalc.htm
General information: http://www.mirecc.org/resources.shtml
Overview of Weight Issues in Patients Treated for Psychosis

Weight Gain Associated with Antipsychotic Medications

There have been several well-documented studies showing a strong correlation between antipsychotic medications and weight gain. A comprehensive comparison of the weight gain experienced by patients while taking various antipsychotic medications was compiled (see Table 1), using a meta analysis of 81 studies that included data on weight change in antipsychotic-treated patients.

Table 1. Mean weight gain at 10 weeks on a standard dose (Random Effects Model)²

<table>
<thead>
<tr>
<th>Medication</th>
<th>Weight (in kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clozapine</td>
<td>4.45</td>
</tr>
<tr>
<td>Olanzapine</td>
<td>4.15</td>
</tr>
<tr>
<td>Thioridizine</td>
<td>3.19</td>
</tr>
<tr>
<td>Chlorpromazine</td>
<td>2.58</td>
</tr>
<tr>
<td>Risperidone</td>
<td>2.10</td>
</tr>
<tr>
<td>Nonpharmacological control</td>
<td>1.33</td>
</tr>
<tr>
<td>Haldol</td>
<td>1.08</td>
</tr>
<tr>
<td>Fluphenazine</td>
<td>0.43</td>
</tr>
<tr>
<td>Ziprasidone</td>
<td>0.04</td>
</tr>
<tr>
<td>Molindone</td>
<td>-0.39</td>
</tr>
<tr>
<td>Placebo</td>
<td>-0.74</td>
</tr>
</tbody>
</table>

Most of the weight gain appears to occur during the first 6 months of treatment with an antipsychotic medication. However, there is still evidence of some weight gain, which may occur after this time period. Study data comparing approximate, longer-term (1 year) mean weight gain on atypical antipsychotic medications is shown in Table 2.³,⁴.

Table 2. Mean weight gain at one year

<table>
<thead>
<tr>
<th>Medication</th>
<th>Weight (in kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Olanzapine</td>
<td>6.5</td>
</tr>
<tr>
<td>Quetiapine</td>
<td>3.0</td>
</tr>
<tr>
<td>Risperidone</td>
<td>2.0</td>
</tr>
<tr>
<td>Ziprasidone</td>
<td>0.5</td>
</tr>
</tbody>
</table>

Weight gain has been strongly associated with the development of type II diabetes. The prevalence of both obesity and diabetes among patients suffering from schizophrenia is approximately 1.5-2.0 times higher than in the general population⁵, although some inpatients studies suggest that the prevalence of diabetes may be nearly 3 times higher than the general population from the same geographical area⁶,⁷.
Drug-induced hyperglycemia can be caused by insulin resistance, which in turn, may be due to weight gain, or by a direct effect on insulin-sensitive target tissues. Although much of the increase in diabetes in patients with schizophrenia may be due to weight gain, there is evidence that two medications in particular (Clozapine and Olanzapine), appear to cause higher fasting and postprandial insulin levels than patients treated with first generation antipsychotics, even after adjusting for body weight.

In reviewing the available data on the atypical antipsychotic medications, it appears that Clozapine and Olanzapine consistently show an increased risk for diabetes. The risk for Risperdal and Quetiapine are less clear, as some studies suggest an increased risk, while others do not. Ziprasidone and Aripiprazole has thus far not shown an increased risk for diabetes.

In reviewing the available information regarding lipid abnormalities associated with antipsychotic medications, these abnormal lipids appear to correlate with the propensity of the medication to cause weight gain. Among the atypical antipsychotic medications, Clozapine and Olanzapine appear to be associated with the greatest increases in total cholesterol and Triglyceride levels, and with the greatest decrease in HDL cholesterol. The information on LDL is more controversial, as some studies appear to show in increase in LDL with these two medications, while others do not. Risperidone and Quetiapine appear to have less negative impact on lipid profiles, and Ziprasidone and Aripiprazole appear to not have any significant impact on lipid profiles.

As shown in this section, weight gain associated with some atypical antipsychotic medications, can be significant, and may be interrelated with other risks factors for CHD, such as diabetes and abnormal lipid profiles. The most weight gain appears to be associated with Clozapine and Olanzapine, and these medications are also associated (independently), with abnormal glucose metabolism. Patients suffering from obesity, diabetes, hyperlipidemia, or other complications of being overweight (as listed in the next section), or are gaining weight on their current medication(s), should be evaluated very carefully when choosing or changing an antipsychotic medication.

Medical Consequences of Being Overweight
Higher morbidity is associated with being overweight, and this increase rises as the body mass index (BMI) rises above 20 kg/m². The health risks for obesity include hypertension, diabetes type II, coronary heart disease, congestive heart failure, CVA, gallbladder disease, osteoarthritis, sleep apnea, colon cancer, breast cancer, and endometrial cancer. The specific increase in risk for each of these disease entities will be further explored in this section.

Blood pressure increases progressively with higher BMI values in both men and women. The prevalence of high blood pressure in men with a BMI >30 is 2.1 times higher than in men with a BMI ≤25 (38.4% vs 18.2%) and in women with a BMI >30 is 1.9 times higher than in women with a BMI ≤25 (32.2% vs. 16.5%). Hypertension is a significant risk factor for the development of cardiovascular disease, with all its associated complications (i.e., coronary heart disease (CHD), cardiovascular accident (CVA), congestive heart failure (CHF)).
The development of diabetes type II, has been associated with weight gain after the age of 18 in both men and women. The relative risk of diabetes increases by approximately 25% for each additional 1kg/m² increase in BMI above 22 kg/m².

The risk of CHD and nonfatal myocardial infarction (MI) increase with increasing BMI levels. In the Nurses’ Health Study, which controlled for age, smoking, parental history of CHD, menopausal status, and hormonal use, the risks for CHD were twice as high at BMIs between 25-28.9, and three times as high at BMIs at 29 or greater, as compared to BMIs less than 21.

The risk of CHF increases with weight in a number of studies, including the Framingham Heart Study. This stems from several possible physiological changes associated with weight gain, including alterations in cardiac structure and function. These changes, such as ventricular dilation and eccentric hypertrophy, can result in both diastolic and systolic dysfunction.

The risk of ischemic, but not hemorrhagic strokes, correlates with increasing BMI. The ischemic stroke risk is 75% higher in women with BMI >27, and 137% higher in women with a BMI >32, as compared with women having a BMI <21.

The risk of gallstones increases in both men and women. For example, in women, the risk of either gallstones or cholecystectomy is as high as 20 per 1,000 women per year with BMIs >40, as compared with 3 per 1,000 women per year with BMIs <24.

The risk of osteoarthritis increases with body weight, and is significantly associated with increased pain in weight-bearing joints. For example, in a study of twin middle-aged women, it was estimated that for each kg of weight gain, the risk of developing osteoarthritis increases by 9-13%.

Upper body obesity is a risk factor in the development of sleep apnea, and has been shown to be related to its severity. In particular, large neck girth is highly predictive of sleep apnea. Most people with sleep apnea have BMIs >30. The medical consequences of sleep apnea include arterial hypoxemia, interrupted sleep, pulmonary hypertension, systemic hypertension, and cardiac arrhythmias.

There appears to be a correlation between obesity and colon, breast, and endometrial cancer. The increased risk of colon cancer is somewhat controversial, and so will not be reported here. In postmenopausal women, there is a direct correlation between obesity and breast cancer. A gain of more than 20 lbs from age 18 to midlife doubles the risk of developing breast cancer. The risk of endometrial cancer is three times higher among women with BMIs >30kg/m² as compared with women having BMIs <25.

It is now clear that the medical consequences of being overweight are extensive. Given the severity of these medical complications, more aggressive measures should be employed by health care providers toward the treatment and prevention of weight gain and obesity.

**Pharmacologic Approaches which May Assist with Weight Loss**

The use of medications for the treatment of obesity are generally recommended only as an adjunct to dietary measures, exercise, and behavioral modifications. Recently published APA practice guidelines on the treatment of patients with schizophrenia, recommend that in patients with a BMI>18.5, “an increase in BMI..."
of 1 BMI unit would suggest a need for intervention by monitoring weight more closely, engaging the patient in a weight management program, using an adjunctive treatment to reduce weight, or changing the antipsychotic medication.23 Medications which may assist with weight loss, are recommended under the following circumstances:

1. In those patients with a BMI of > 30kg/m², or with a BMI of >27kg/m² when combined with medical comorbidities (diabetes, CHD, hyperlipidemia, history of CVA, hypertension (HTN)).

2. Patients who have met the above criteria, and have not lost at least 8-10% of baseline weight after more than 6 months in spite of diet modification with an adequate exercise program.24

FDA approved medications which assist with weight loss generally fall into two main categories: Those that decrease food intake by suppressing appetite, and those that decrease nutrient absorption. Each category of medications will now be examined in more detail.

Medications which reduce appetite
Most appetite suppressants work by increasing anorexigenic neurotransmitters, such as serotonin, norepinephrine, and dopamine. Medications which increase serotonin only, notably, Fenfluramine and dexfenfluramine, were withdrawn from the market in the United States because of associations with valvular heart disease and pulmonary hypertension.

The most well studied noradrenergic medication used for weight loss to date is phentermine. This medication is approved by the FDA for short-term use only (i.e., less than 12 weeks for the treatment of obesity).25 The usual recommended dose of phentermine is 18.75-37.5mg PO QAM. The average amount of weight loss in the general population has been 4-20 lbs (2-10 kg) compared to placebo in the short term (6 months).25 The side effects of phentermine include insomnia, dry mouth, constipation, euphoria, palpitations, and hypertension. Unfortunately, phentermine is generally not recommended in patients suffering from schizophrenia, as its dopaminergic effects may worsen psychosis. Phentermine is contraindicated in patients suffering from hypertension, advanced cardiovascular disease, hyperthyroidism, glaucoma, and those having a history of substance abuse. Phentermine should not be used in patients taking MAOIs, guanethidine, tricyclic antidepressants, sibutramine, CNS stimulants, or EtOH.25

Sibutramine is a medication which inhibits norepinephrine reuptake, serotonin reuptake, and to a lesser extent, dopamine reuptake. It is approved by the FDA for long-term use for weight loss and weight maintenance in conjunction with dietary measures involving caloric restriction. The recommended dose for sibutramine is 5-15mg PO QD. In several studies, patients taking sibutramine while following a reduced calorie diet, lost 5-8 percent of their preintervention weight, as compared with 1-4 percent among patients receiving placebo.26-29 Sibutramine appeared to help maintain reductions in weight as compared to placebo for at least a year in one study.30 The side effects of sibutramine can include hypertension and tachycardia, although these appear to be mild. Other side effects include insomnia, headache, constipation, and dry mouth. Sibutramine is contraindicated in patients suffering from uncontrolled hypertension, severe hepatic dysfunction, severe renal impairment, narrow-angle glaucoma, coronary artery disease, arrhythmias, congestive heart failure, history of CVA, and those having a history of substance abuse. Sibutramine should
not be used in patients taking MAOIs, SSRIs, centrally active anorexiant, sumatriptan, dihydroergotamine, dextromethorphan, meperidine, pentazocine, fentanyl, tryptophan, and lithium.

Medications that decrease nutrient absorption
Orlistat is a medication which binds to gastrointestinal lipases in the lumen of the small intestine, which prevents hydrolysis of dietary triglycerides into absorbable free fatty acids and monoacylglycerides. It is approved by the FDA for long-term use for weight loss and weight maintenance. Patients taking orlistat will excrete approximately one third of the dietary fat that is ingested, thereby reducing calorie absorption. The usual dose is 120mg PO TID within 1 hour of a meal. It is recommended that patients should also take a daily multivitamin at least 2 hours before or after taking orlistat, as this medication can reduce the absorption of fat-soluble vitamins. Patients taking orlistat lost approximately nine percent of their preintervention weight as compared with 5.8 percent of those who took placebo. In longer-term studies (i.e., longer than one year), orlistat appeared to decrease diastolic blood pressure, lower fasting insulin levels, and reduce total cholesterol and LDL cholesterol, in a manner which was independent of weight loss. The side effects of orlistat include fecal urgency, fecal incontinence, steatorrhea, and flatulence. These side effects led to discontinuation in approximately nine percent of patients, as compared with five percent taking placebo.

Non-FDA approved medications/off-label use
Topiramate has been used as an anticonvulsant, and as a mood stabilizer. However, there have been a number of case reports involving patients with mental illness, who have lost weight with topiramate. The weight loss ranged from 7 to 33 kg over the course of 2 to 8 months. Topiramate is usually started at 25mg PO BID and then titrated up to 400mg /day. The side effects of topiramate include cognitive slowing, sedation, dizziness, fatigue, leukopenia, and kidney stones. Topiramate should be used with caution in patients suffering from dementia or other cognitive impairments, and in patients who are taking other medications which have a propensity to cause bone marrow suppression, such as Carbamazepine. There have also been case reports involving Topiramate-induced leukopenia in patients taking Clozaril, although this data has not been as clearly demonstrated.

Metformin is an oral hypoglycemic medication that has also been shown to have weight reducing effects in some patients. There has been one open-label study on the use of metformin for weight gain due to antipsychotic use. Metformin at 500mg PO TID was added to existing antipsychotic medications (olanzapine, quetiapine, risperidone, or valproic acid) in patients who had gained more that 10% of their baseline weight. In a period of 12 weeks, these patients showed a statistically significant decrease in BMI of 2.22kg/m$^2$ and an average weight loss of 2.93kg.

The side effects of metformin include nausea, vomiting, diarrhea, and lactic acidosis. Lactic acidosis is estimated to occur at a rate of 3 cases per 100,000 patient-years of exposure. Metformin should be used with caution in patients with a history of EtOH abuse, and is contraindicated in patients with hepatic dysfunction, renal insufficiency, congestive heart failure, and pulmonary disease, due to a higher risk of lactic acidosis.

Amantadine is an antiviral and anti-Parkinsonian medication, that acts by stimulating dopamine release, and by inhibiting dopamine reuptake. In a recent study, patients who had experienced an average weight gain of 15 lbs while being treated with Olanzapine, were then treated with amantadine 100-300mg/day for a 12 week period. The average weight loss at week 4 was 1.1 kg, and 2.2 kg by the end of the study. Amantadine
should be used with caution in schizophrenic patients, as this medication can be associated with worsening psychosis.

Nizatidine is an H2 antagonist, which may assist with weight loss by reducing appetite or by suppression of gastric acid secretion. A prospective, randomized, double blind study was conducted to evaluate the potential for nizatidine to limit the amount of weight gain in patients receiving olanzapine. It was found that patients receiving nizatidine at 300mg BID gained 25% less weight over 16 weeks as compared with the placebo group (3.9kg vs 4.8kg). However, this difference was not statistically significant.

General comments regarding pharmacotherapy for weight loss
It is recommended that medications used for weight loss be used singly rather than in combination. Combination drug therapy may increase the risk of adverse events. These medications should only be used as part of a comprehensive program that includes behavior therapy, dietary measures, and an increase in physical activity. After starting medications, patients need to return for follow-up in 2-4 weeks, then once a month for the first 3 months, and then once every 3 months for the first year. During these visits, it is important to monitor their weight, blood pressure, pulse, and for the appearance of any adverse side effects.

Herbal medications, although highly popular, are not recommended as part of a weight loss program. These preparations have unpredictable amounts of active ingredients, and unpredictable amounts of other additives, which may cause serious side effects.
Wellness Sessions

Assessment and Referral to the Wellness Program
Assessment of a patient should include the evaluation of two components: Body mass index (BMI) or waist circumference, and risk factors or medical comorbidities.

Body Mass Index
BMI is a measurement of an individual’s weight in relation to their height and is commonly used to determine desirable body weights. To estimate BMI, multiply the individual’s weight (in pounds) by 703, and then divide by the height (in inches) squared. This approximates BMI in kilograms per meter squared (kg/m$^2$) (Appendix A). There is evidence to support the use of BMI in risk assessment since it provides a more accurate measure of total body fat compared with the assessment of body weight alone.

Waist Circumference
Excess abdominal fat is an important, independent risk factor for disease. The evaluation of waist circumference to assess the risks associated with obesity or overweight is supported by research reviewed in this manual. The risk of medical complications, particularly heart disease, increases when body fat is distributed around the waist, especially in the abdomen. The measurement of waist-to-hip ratio provides no advantage over waist circumference alone. This measurement is particularly useful in patients who are categorized as normal or overweight.

Risk Factors or Comorbidities
Overall risk must take into account the presence of certain other risk factors. These include things like smoking, physical inactivity, family history of premature heart disease, high blood pressure, high LDL or “bad” cholesterol, low HDL or “good” cholesterol, and high blood glucose. Some diseases or risk factors associated with obesity place patients at a high absolute risk for subsequent mortality; these will require aggressive management. Other conditions associated with obesity are less lethal but still require treatment.

Referral to the wellness program is indicated for a patient with any of the following:
1. BMI of 25 to 29, who have two or more additional risk factors
2. BMI $\geq$ 30
3. Waist measurements of 40” or more for males, and 35” or more for females

The patient’s psychiatrist or case manager can refer the patient to the program by contacting the clinical staff in charge of the program. At the time of referral, the patient’s psychiatrist or case manager should confirm that the following labs have been completed in the last three months (and if not they should be ordered at the time of referral): Lipid profile, which includes total cholesterol, LDL, HDL, and Triglycerides, and a Heme A1C.

At the time of the referral, the clinical staff from the Wellness Program will direct the patient’s psychiatrist to the Treatment Guideline Synopsis (page 4 of this manual) and Tables 1 and 2 in the literature review (page 5 of this manual) regarding weight gain associated with antipsychotic medications. Psychiatrists will be asked to consider a medication switch to an antipsychotic with less weight gain potential or, as a secondary response, to add a medication for weight (e.g., Toprimate).
**Important Notes for the Wellness Sessions:**
Wellness program sessions rely heavily on material from the two sections of the Solutions for Wellness Group Program: (1) Fitness and Exercise and (2) Nutrition, Wellness, and Living a Healthy Lifestyle. Several of the wellness session below will refer you to pages in the patient manual sections of this group program.

There are separate instructor’s notes to guide your use of the patient manual. The Instructor’s Notes and Patient Manual for the two sections of the Solutions for Wellness Group Program can be found at [http://www.treatmentteam.com/health_fitness/health_fitness.jsp](http://www.treatmentteam.com/health_fitness/health_fitness.jsp) in the left column under Solutions for Wellness Program. Note that the page numbers referred to in the wellness session section below are the numbers that are centered at the bottom of the patient manual page, not the page number of the pdf document. Throughout the wellness session section below there are additional passages to guide and educate instructors on the session topic, although this information will not be directly used in session.

Sessions are improved significantly by review and preparation prior to each class. Sessions are also improved by providing each participant a copy the pages of the patient manual to be covered during that session. Participants can keep their pages of the patient manual or you may develop a notebook for each of them that you bring to the sessions each week.

Sessions are likely to last about 45 minutes and should be scheduled at least weekly. There are a total of 16 sessions. Patients can enter the program at any time---they need not wait until Session 1 begins. Patients should continue until they have completed the full 16 sessions. Patients can repeat the program as needed.

**Helpful skills for instructors:**
There are several strategies that are helpful for effective education with this population and these include:

1. Engage participants by having them read aloud.
2. Direct majority of questions to participants by name (say name then ask question).
3. Summarize frequently.
4. Involve each person about the same number of times.
5. Identify, write on board, discuss, and repeat main goal and points of session.
6. Provide positive feedback for relevant participation. Re-direct irrelevant comments.
7. Give concrete examples that apply to participants’ lives. Encourage participants to provide examples.
8. Apply all 5 teaching strategies (see it, hear it, say it, write it, use it).
9. Use adult tone of voice. Do not “talk down” to participants.
10. Use handouts.
11. Use immediate prompting for inattentive participants.
All sessions begin with:
- Attendance
- Weigh in by all participants
- Sharing with participant where he falls on colored coded BMI chart (Appendix A), where green indicates ideal BMI, yellow indicates overweight BMI, and orange indicates obese BMI.
- Knowledge assessment (when indicated) (Appendix B)
- Quick review of main points of previous session

All sessions end with:
- Repeat knowledge assessment (when indicated)

Tools needed for sessions:
- White board or chalk board
- Handouts of readings and knowledge test questions to be covered
- Pens/pencils
- Food models are helpful for some sessions
- Nutrition in the Fast Lane (booklet from Lilly) is used in session 12

Session 1:
Goal: Increase knowledge about health problems associated with poor diet
Knowledge assessment questions: None for today

Use page 4 and page 6 of the Nutrition and Wellness section of the Solutions for Wellness manual (Health Problems Associated with a Poor Diet)

Sessions 2 and 3:
Goal: Increase knowledge about Food Pyramid and Portion Sizes
Knowledge assessment questions: 1-3 (only test on the section covered on that day)

Use pages 9-11 of the Nutrition and Wellness section of the Solutions for Wellness manual (Food Pyramid and Portion size)

Helping members understand portion/serving sizes is of utmost importance. Supplying people with concrete, visual examples such as measuring cups, spoons, and food models (obtained from National Dairy Council) can be extremely helpful in increasing their understanding of recommended serving sizes. An excellent pocket guide to food portions using everyday objects as examples of serving sizes is provided in Appendix C.

When reading food labels and counting calories, one must be careful to note the serving size that the figures are based on since there is often more than one serving included in a single package.

It is necessary to emphasize the importance of making wise food choices and to focus on portion control regardless of where they meals are eaten (e.g., restaurant, Board and Care, parent’s or friend’s home, or when alone). Saying no to a second helping being offered at a Board & Care or choosing medium rather than
a super-sized portions at fast food restaurants are examples of simple steps one can begin to take in order to
take better control of their diet.

Session 4:  
Goal:  Increase knowledge regarding foods to be increased: Fiber  
Knowledge assessment question:  4

Use pages 15-16 of the Nutrition and Wellness section of the Solutions for Wellness manual (Choose a Diet with Plenty of Grain Products, Vegetables, and Fruits)

Session 5:  
Goal:  Increase knowledge regarding foods to be increased: Water  
Knowledge assessment questions:  5-7

Use page 23-24 of the Nutrition and Wellness section of the Solutions for Wellness manual (The Role of Water in Good Nutrition)

The importance of water as part of a healthy diet cannot be overstressed. Keeping one’s body well hydrated
is essential for it to function properly. Since water has no caloric value, it is not considered to be an energy
source, but we could not digest or absorb the foods that we eat or eliminate the body’s digestive waste
without it.  Our bodies are made up of 65 percent water, and it takes an average of eight to ten cups to restore
the water that we lose during the course of a day. Water is restored through drinking liquids (preferably those
without caffeine, alcohol, or too much sugar), and through the foods we eat. Fruits and vegetables contain
anywhere from 80 to 95 percent water, meats are made up of 50 percent water; and grains (e.g., oats and
rice) can have as much as 35 percent water. Drinking extra water while trying to lose weight can also help
you eat less because it gives you the sensation of feeling full.

Session 6:  
Goal:  Increase knowledge regarding the importance of exercise  
Knowledge assessment question:  None for today

Use the last two paragraphs of page 14 of the Nutrition and Wellness section of the Solutions for Wellness
manual (Balance the Food You Eat with Physical Activity – Maintain or Improve Your Weight).  The
paragraph starts with “People with mental illness…..”.  Also use page 3 of the Fitness and Exercise section
of the Solutions for Wellness manual (Common Roadblocks Preventing People from Exercising).

Discuss realistic goals for starting to increase exercise.

Session 7:  
Goal:  Increase knowledge regarding foods to be decreased:  Fat and Cholesterol  
Knowledge assessment questions:  8-10

Use paragraph one on page 7 (Heart Disease and Stroke) and use pages 17-18 both in the Nutrition and
Wellness section of the Solutions for Wellness manual (Choose a Diet Low in Fat, Saturated Fat, and
Cholesterol)
Note: The Food Pyramid on page 9 is likely to be referred to in this class. You may want to make multiple copies of it to use in this class.

Fats, which provide 9 calories of energy per gram, are the most concentrated of the energy-producing nutrients. This is why our bodies need so little fat in order to function properly. To understand the problem with a diet that is high in saturated fat, one must first understand its link to cholesterol. Our bodies need cholesterol in order to function properly. Cholesterol helps build cell membranes, protect nerve fibers, and helps produce vitamin D and certain hormones. But since the body produces all the cholesterol it needs in the liver and small intestine, we do not need to add cholesterol to our diet.

Foods that are high in saturated fat (animal fats) such as eggs, dairy products, and meats, also contain high amounts of cholesterol. When we eat these foods, we increase the level of a cholesterol carrying substance in our blood that can be harmful to our health. Because of this, saturated fats, present in foods like beef, ice cream, yellow cheeses, and doughnuts should make up no more than 10 percent of our daily caloric intake. It is thought that most Americans get anywhere from 15 to 50 percent of their daily calories from fats alone. Health experts consider a diet that derives more than 30 percent of its calories from fat to be unsafe, increasing the risk of heart disease. Monounsaturated fats (found in olive, peanut, and canola oils) appear to have the best effect on lowering cholesterol. Polyunsaturated fats (found in items like margarine, sunflower, soybean, corn, and safflower oils) are considered to be healthier than saturated fats, but if consumed in excess of more than 10 percent of daily caloric intake, can also be harmful by having a negative effect on good cholesterol.

Session 8:
Goal: Starting Exercise
Knowledge assessment questions: None for today

Use pages 28-29 of the Fitness and Exercise section of the Solutions for Wellness manual (Getting Started with an Exercise Program).

Session 9:
Goal: Increase knowledge regarding foods to be limited: Sugars
Knowledge assessment questions: 11-12

Use paragraphs 2 and 3 on page 7 (High Blood Pressure and Diabetes) and use page 19 both in the Nutrition and Wellness section of the of Solutions for Wellness manual (Choose a Diet Moderate in Sugars)

Simple sugars (those that are refined from naturally occurring sugars and then added to processed foods) require little digestion and are quickly absorbed by the body. This process wreaks havoc on our bodies and triggers a series of unhealthy events. The body’s rapid absorption of simple sugars elevates the levels of glucose in the blood, which in turn triggers the release of the hormone insulin. The presence of insulin in the bloodstream helps bring excess glucose levels under control, but after about an hour or two, blood glucose levels may fall so low that the body makes up for it by releasing anti-insulin hormones. This surge of chemicals can leave a person feeling irritable and nervous.
Many processed foods not only contain high levels of added simple sugars, but they also tend to be high in fat and lacking in the vitamins and minerals that are naturally found in complex carbohydrates. Because of this, nutritionists often refer to these types of foods as “junk foods”, or as foods containing “empty calories”. In the typical American diet, only 40-50 percent of total calories come from carbohydrates, nearly half of which come from processed foods filled with simple sugars. Experts recommend that these foods make up no more that 10 percent of our diet because of their lack of nutritional value. Foods rich in complex carbohydrates (an excellent source of energy) should make up roughly 50 percent of our daily calories.

One of the first steps toward helping improving one’s diet would be to limit one’s daily intake of foods high in refined sugar and saturated fats. Limiting foods such as sodas, candy bars, fried foods, high fat salad dressings, fast foods high in saturated fats, chips, nuts, etc, can only stand to lower one’s risk for problems like heart disease and certain cancers. Suggest substituting with diet sodas, drinking more water, eating more fruits and vegetables, and substituting salsa, fat free or low-fat condiments. Asking people to eliminate fatty and processed foods altogether is unreasonable and a sure-fire way to set them up for diet failure. Helping them set expectations that they can strive toward and likely achieve, will increase the likelihood that they will be able to develop changes in their diet that they will adhere to long after the group has ended.

**Session 10:**
**Goal:** Increase walking as an exercise
**Knowledge assessment question:** None for today

Use pages 22-23 (Walking – an Ideal Exercise) and page 31 (When to Stop Exercising) both of the Fitness and Exercise section of the Solutions for Wellness manual.

**Session 11:**
**Goal:** Learn ways to control hunger
**Knowledge assessment question:** None for today

Use page 32 of the Nutrition and Wellness section of the Solutions for Wellness manual (Controlling Your Hunger)

Helping participants learn to pay attention to hunger and satiety cues may be a bit difficult due to their intangible nature. Prompt members to pay attention to whether they are eating because they are truly hungry or for some secondary gain, such as to combat boredom, feeling sad, lonely. Real hunger should not occur for at least 4 hours after a good-sized meal and 2 hours after a snack. This is also an opportune time to talk about the degree of satiety one should feel after eating a meal versus a snack.

**Session 12:**
**Goal:** Increase knowledge regarding foods to be limited: Salt and Sodium; Discuss Fast Food restaurants
**Knowledge assessment question:** 13

Use page 20 of the Nutrition and Wellness section of the Solutions for Wellness manual (Choose a Diet Moderate in Salt and Sodium); Also use Lilly Fast Food restaurant booklet: Nutrition in the Fast Lane (refer participants to the columns for fat, sugars, sodium)
Taking into account the fact that fast food places are so accessible and convenient in today’s society, as part of their wellness program Eli-Lilly has come out with a condensed, user-friendly guide to the various fast food chains’ menus that includes caloric values and nutritional information for each of the items listed. A review of this handout can be useful for those who frequently eat out. Pointing out choices at restaurants that provide “better” menus can help provide members with useful tools to help in their decision-making and meal planning.

**Session 13:**
**Goal:** Discuss expectations for changing your eating and exercise lifestyle  
**Knowledge assessment questions:** None for today

Many times an all-or-nothing view of success is what gets in the way of making progress towards one’s goals. Certain key points should be stressed in order to help members realize that trying to change something as ingrained and complex as one’s diet and exercise routine is a difficult and lifelong process:

1) **In the beginning, set easy, obtainable, and measurable goals.**  
   This will boost confidence and increase motivation.
2) **Set the right expectations. Expect to slip-up along the way.**  
   Expecting to do it all perfect from the beginning can create an atmosphere that is not only unrealistic, but also not conducive to success. Expecting and admitting to yourself where you have failed is an important part of growing as you head toward your goal.
3) **Practice damage control.**  
   When you do slip-up, it is important to recognize this early. Don’t be too harsh on yourself, and don’t throw it all away. Try to get back on track as quickly as you can so as not to delay or sabotage the progress you have already made.
4) **Reward yourself along the way.**  
   Find healthy pleasures and substitutes for eating. If you have a craving for sweets, try eating a piece of fresh fruit first. If you still have the craving after 5-10 minutes, go ahead and indulge a little in a sweet snack. Drinking a lot of water (naturally flavored with lemon for example) throughout the day can help keep hunger urges at bay.
5) **Be patient.**  
   Remember that it is a life-long process to change one’s eating habits and get comfortable with regular exercise. Little changes at a time are big successes. Many bad habits may need to be unlearned before they can be replaced with newer, healthier ones.
6) **Be forgiving.**  
   These are difficult tasks to undertake, but ones that will ultimately hold huge rewards as you begin to look and feel better about yourself.

**Session 14:**
**Goal:** Increase knowledge about the importance of avoiding alcohol  
**Knowledge assessment questions:** 14-15

Use page 22 of the Nutrition and Wellness section of the Solutions for Wellness manual (Avoid Alcohol).
With extra time, review the importance of increasing water intake (pages 23-24 of the Nutrition and Wellness section of the Solutions for Wellness manual).

**Session 15:**
**Goal:** Fitting Exercise into Daily Routine
**Knowledge assessment questions:** None for today

Use pages 34-35 (Fitting Exercise into Your Daily Routine) of the Fitness and Exercise section of the Solutions for Wellness manual.

**Session 16:**
**Goal:** Review and summary
**Knowledge assessment questions:** None for today
**Following today’s session:** Have participant’s psychiatrist or case manager repeat these labs: Lipid profile, which includes total cholesterol, LDL, HDL, and Triglycerides, and a Heme A1C.

Discuss participants’ progress in weight, exercise, and knowledge (both as a group and individually). Review problem areas and participant questions.

End with pages 38 of the Nutrition and Wellness section of the Solutions for Wellness manual (A Final Word) and page 38 of the Fitness and Exercise section of the Solutions for Wellness manual (Some Final Words).
References


45. Schiefler P. Partnership for recovery: (Available from Center for Excellence in Psychiatry, University Behavioral Healthcare, 151 Centennial Avenue, Suite 1500, Piscataway, NJ, 08854); 2002.
BMI Index Table

Find height on left-hand side, move to the right until you come to weight, look at the top row for the corresponding BMI.

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</table>

Appendix A

BMI Index Table

Find height on left-hand side, move to the right until you come to weight, look at the top row for the corresponding BMI.
Appendix B

Knowledge Assessment

Sessions 2 and 3:
1. Why must we eat?
   a. To be socially accepted
   b. To gain fuel and energy to make our bodies run
   c. To maintain unhealthy eating habits
   d. None of the above

2. How many servings of fruits and vegetables do we need each day?
   a. 1-3
   b. 2-4
   c. 3-5
   d. 6-11

3. How many servings of meats do we need each day?
   a. 1-3
   b. 2-4
   c. 3-4
   d. 5-6

Session 4:
4. Why is fiber important?
   a. Maintains proper bowel movement
   b. Naturally alleviates constipation
   c. Very filling
   d. All of the above

Session 5:
True or False:
5. Including water in your diet is not important.

6. What is the recommended amount of water we should drink each day?
   a. 6 glasses
   b. 8 glasses
   c. 10 glasses
   d. 12 glasses

7. How much water is recommended when we participate in regular exercise?
   a. 6-8 glasses
   b. 3-5 glasses
   c. 9-13 glasses
   d. 15-20 glasses
Session 7:
8. Extra cholesterol is obtained from:
   a. Egg yolks
   b. Meat
   c. Higher fat milk products
   d. All of the above

True or False:

_____ 9. The body does not make all the cholesterol it requires.

_____ 10. We should never eat foods that contain fat.

Session 9:
11. Which of the following is the best definition of diabetes?
    a. A diet consisting of too much sugar
    b. A diet that helps you to lose weight
    c. A medical condition where the body cannot break down sugar in the blood
    d. All of the above

12. A major problem arising from eating a diet high in sugar is:
    a. Tooth decay
    b. Sticky fingers
    c. Bad breath
    d. All of the above

Session 12:
13. How much salt does the average person need?
    a. 24 mg per day
    b. 240 mg per day
    c. 2,400 mg per day
    d. 24,000 mg per day

Session 14:
14. Consumption of alcohol can lead to:
    a. Increased risk of stroke
    b. Heart disease
    c. Damage to the liver
    d. All of the above

True or False:

_____ 15. Alcohol and coffee are good sources of fluids.
Knowledge Assessment – Answer Key

1. b
2. b
3. b
4. d
5. F
6. b
7. c
8. d
9. F
10. F
11. c
12. a
13. c
14. d
15. F
### Appendix C

#### Portion Size Guide

<table>
<thead>
<tr>
<th>Portion Guide</th>
<th>Description</th>
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<tbody>
<tr>
<td>Serving of pasta or rice (½ cup)</td>
<td>1 cupped hand/baseball</td>
</tr>
<tr>
<td>Serving of green salad (1 cup)</td>
<td>2 cupped hands</td>
</tr>
<tr>
<td>Serving of meat (3 oz)</td>
<td>Deck of cards</td>
</tr>
<tr>
<td>Serving of salad dressing (2 Tbsp)</td>
<td>Small thumb</td>
</tr>
<tr>
<td>Ice cream</td>
<td>One scoop</td>
</tr>
<tr>
<td>Butter/margarine (1 tsp)</td>
<td>Tip of your thumb</td>
</tr>
<tr>
<td>Grapes, cherries, berries (1 cup)</td>
<td>Handful</td>
</tr>
<tr>
<td>Medium fruit (banana, orange, apple)</td>
<td>Whole piece</td>
</tr>
<tr>
<td>Bread</td>
<td>1 slice</td>
</tr>
<tr>
<td>Crackers</td>
<td>4-6 small crackers</td>
</tr>
<tr>
<td>French fries</td>
<td>10 French fries</td>
</tr>
<tr>
<td>Cheese (1 oz)</td>
<td>2 dominos</td>
</tr>
<tr>
<td>Hard roll (1.5 oz)</td>
<td>Bar of soap</td>
</tr>
<tr>
<td>Nuts (1 oz)</td>
<td>2 shot glasses full</td>
</tr>
<tr>
<td>Chocolate (1 oz)</td>
<td>Package of dental floss</td>
</tr>
<tr>
<td>Sour cream (1/4 cup)</td>
<td>Golf ball</td>
</tr>
<tr>
<td>Oil (1 tsp)</td>
<td>thimble</td>
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</table>