

# A design and focus group evaluation of dietary choices tools for an underserved population

Tressa McMorris, PharmD<sup>1</sup>; Gary Sweet Jr, PharmD Candidate<sup>2</sup>;  
Christopher J. Sullivan, PharmD Candidate<sup>2</sup>; Nicole B. Washington, DO<sup>3</sup>;  
Nancy Brahm, PharmD, MS, BCPP, CGP<sup>4</sup>

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## Abstract

**Introduction:** Our objective was to develop and evaluate dietary teaching tools for a select population diagnosed with a severe mental illness and limited financial ability. Patients with severe mental illnesses face many challenges, including common health comorbidities of diabetes, high blood pressure, high cholesterol, and obesity. Cognitive deficits may limit educational programming; financial resources can affect access to a healthy diet. The Integrated Multidisciplinary Program of Assertive Community Treatment (IMPACT) program, a university-based program, provides individualized services to this population. One focus is healthy nutritional choices.

**Methods:** In Phase One, a clinical pharmacist and a first-year pharmacy resident created visual aids. These cards were given to health care providers (HCPs) to be used with IMPACT members. HCPs were asked to participate in a focus group and provide feedback. Phase Two: Based on specific focus group feedback, additional resources were created to address identified nutritional needs.

**Results:** Phase One: Ten cards were created and distributed to the HCPs. A focus group was conducted. HCPs reported the cards were useful in opening dietary choices dialogues and were able to give more specific information on alternative choices. Phase Two: From focus group feedback, specific cards for disease states, calorie guidelines, and budget limitations were developed. HCPs immediately utilized them.

**Discussion:** This pilot project was used to design and create educational cards to facilitate discussions on healthy or healthier dietary choices. Feedback from the HCPs participating in the focus group was positive, and they were enthusiastic about both sets of cards, particularly those pertaining to budget choices.

**Keywords:** budget, case manager, decision-making aid, focus group, mental health, underserved

<sup>1</sup> PGY2 Resident, Internal Medicine, University of Oklahoma College of Pharmacy, Tulsa, Oklahoma; <sup>2</sup> PharmD Candidate, University of Oklahoma College of Pharmacy, Tulsa, Oklahoma; <sup>3</sup> Assistant Professor, University of Oklahoma School of Community Medicine, Department of Psychiatry, Tulsa, Oklahoma. Currently: Family and Children's Services, Tulsa, Oklahoma; <sup>4</sup> (Corresponding author) Clinical Professor, University of Oklahoma College of Pharmacy, Tulsa, Oklahoma, [nancy-brahm@ouhsc.edu](mailto:nancy-brahm@ouhsc.edu)

## Introduction

The assertive community treatment model was specifically designed for persons with a severe mental illness (SMI), a

recent history of psychiatric hospitalizations, criminal justice involvement, homelessness, and/or substance abuse. The model is based on a team approach, which allows for the delivery of a comprehensive package of services to clients in the community.<sup>1,2</sup> The Integrated Multidisciplinary Program of Assertive Community Treatment (IMPACT) team is a university-based service that replicates this framework. It is composed of multiple disciplines with varying experience addressing the needs of this often underserved population. The team consists of a psychiatrist, psychiatry resident, licensed clinical social



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worker, licensed professional counselor, certified behavioral health case managers, a recovery support specialist, 3 nurses, an administrative assistant, and a clinical pharmacist. Persons enrolled in the program have a primary diagnosis of schizophrenia, schizoaffective disorder, or bipolar disorder.

Health care professionals (HCPs) who provide services to this population face many unique challenges. One particular challenge is facilitating education related to healthy dietary choices to mitigate chronic disease risk and severity. The prevalence of cardiovascular disease risk factors, such as obesity, diabetes, dyslipidemia, and hypertension, is approximately double in patients with SMI diagnoses when compared to the general population.<sup>3</sup> It has been shown that in patients with a diagnosis of schizophrenia and diabetes, higher Brief Psychiatric Rating Scale scores correlated with lower participation in self-care activities and a lower knowledge of disease states.<sup>4</sup> Patients with schizophrenia have also been shown to have a diet high in saturated fats and low in fruit and fiber.<sup>4,5</sup> Poor dietary choices, combined with low physical activity, smoking, and alcohol and substance abuse, often lead to development of metabolic syndrome and cardiovascular disease.<sup>3,4</sup>

Dietary education for low-income persons with SMI was of particular interest to the IMPACT team. Although research is available on the development of obesity and food scarcity,<sup>6,7</sup> little research can be found on an educational intervention to improve knowledge of healthy dietary choices among persons with SMI. This project was designed to determine if use of the dietary cards helped HCPs in the community-based IMPACT program provide better individualized education on dietary choices. For purposes of this project, HCP applies to the certified behavioral health case managers and recovery support specialist. All provide direct care, individual discussions on health, and document under the same billing codes.

## Methods

### Phase One

This part of the project was overseen by the clinical pharmacist, who is certified in diabetes management, and a first-year pharmacy resident working with the IMPACT team. In an effort to select topics for the focus group, HCPs were informally asked about IMPACT members' nutritional choices and observations on home visits and outings. Persons receiving services through the IMPACT program did not participate as the purposes of this initiative were to develop tools for the HCPs and receive their feedback about the tools as a method to initiate individualized teaching of healthy diet choices. Food

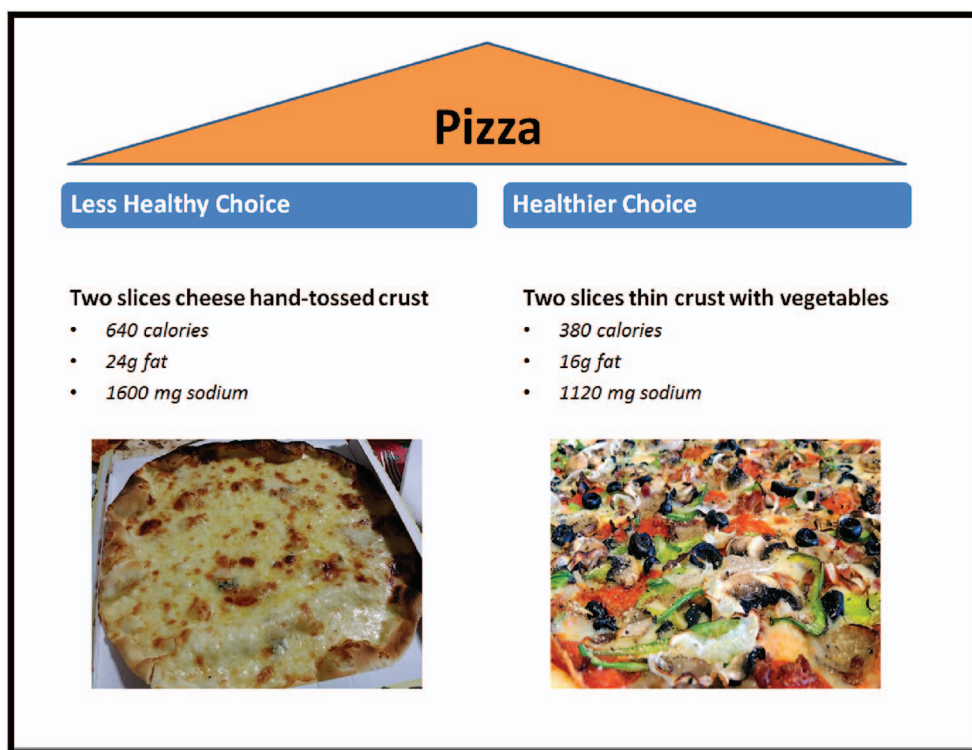
themes were selected and prioritized by the project team members. The importance of educationally appropriate language and the use of pictures were identified as necessary. It was decided to create and pilot 10 cards. Processed food, low-cost options, portion size, and convenience food were identified as areas to target (Figure 1). Reference cards were developed using publishing software (with dimensions of 4 × 6 inches), printed on card stock, and laminated. Illustrations and tables were heavily incorporated to offer easy readability. The cards were distributed to the HCPs for use.

Focus group analysis methodology was used as a framework for clarifying content and fine-tuning the cards and has been used with nutrition education, including low-literacy service recipients, to characterize responses in open-ended survey questionnaires.<sup>8</sup> Questions were developed to guide the discussion, to identify the discussion framework, to assist evaluation, and to identify the most helpful card.<sup>9</sup> Institutional Review Board approval was received for a 1-time focus group session, not to exceed 2 hours. Participation in the focus group was voluntary and limited to HCPs. The clinical pharmacist moderated the focus group process and asked 5 questions regarding the cards.

1. What are some of your thoughts about using reference cards to discuss healthier food choices?
2. What is the 1 thing that you want to stress that is helped by the cards?
3. Which card has been most helpful?
4. Are there other recommendations that would help you use the cards more efficiently?
5. Are there other things that you would like to say before we wind up the session?

### Phase Two

Dietary choices cards included dietary guidelines set forth by the American Heart Association, the American Dietetic Association, and the American Diabetes Association. These guidelines were then used to develop cards for the number of servings of proteins, fats, dairy, vegetables, and fruit recommended by the United States Department of Agriculture (USDA) based on the daily caloric limit. The food selections for each set of cards were chosen based on nutritional information provided by the Food-A-Pedia® application from the USDA.<sup>10</sup> This application allows patients and HCPs to search a database of food items and find a full nutritional description for the given item. Users may also alter the search parameters by setting restrictions, such as limited calories, grams of fat, or milligrams of sodium. This information was then used to determine appropriateness as a food choice. With the proper serving size and nutritional information for each food choice set, the development of menu examples



**FIGURE 1:** Healthier choice card

followed. The cards provided example meals using foods that would fit within the set dietary restrictions and caloric limits. One set of cards addressed high cholesterol concerns. The focus of these cards was to develop a balanced meal plan that reduced the amount of total dietary fat and saturated fat to the American Heart Association’s suggested limits of 20% to 30% of the total daily calories and 200 mg of dietary cholesterol,<sup>11</sup> stressing the difference between good and bad fats, as well as the importance of low fat options (Figure 2).

Another set of cards addressed diabetes. These cards were structured similarly, using recommendations from the American Diabetes Association to limit the total dietary carbohydrate intake to 50% of total daily calories<sup>12</sup> and the importance of complex versus refined carbohydrates when making healthy food choices.

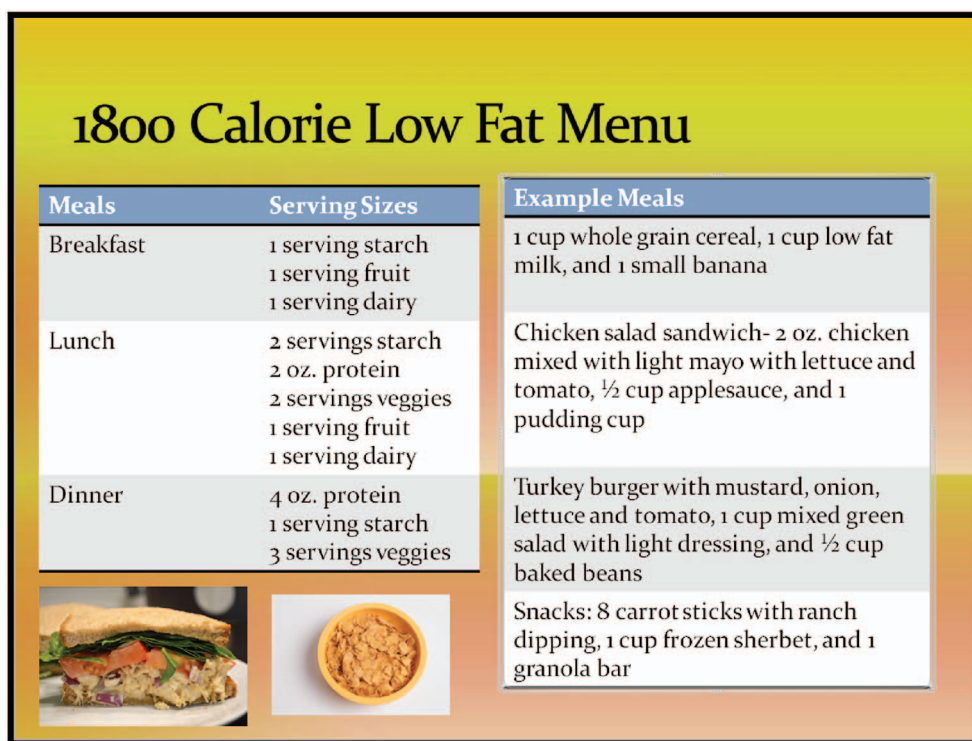
The third set of cards addressed high blood pressure. The American Dietetic Association and the USDA recommend a total daily sodium intake of less than 2 g for those with hypertension.<sup>13,14</sup> These menu plans were developed to correspond to the Dietary Approaches to Stop Hypertension diet method, a diet plan focused on reducing the amount of processed and premade foods in the diet and replacing them with fresh food, such as fruits and vegetables.<sup>13,14</sup> These cards illustrated the sodium content in common foods and healthy dietary choice substitutions.

For each of the meal plans, servings for the food categories (starch, fruit, dairy, protein, and vegetable) and examples were provided for further meal planning. Finally, a 2-sided brochure was created to accompany the menu cards with food portioning and quickly estimating portions using a technique often referenced as the palm method<sup>15</sup> (Figure 3a and b). A monthly food budget representative of the amount provided by state assistance was chosen (\$100).

## Results

### Phase One

Of the 6 HCPs on the IMPACT team, 5 were available to participate. Responses to question 1 found the group was enthusiastic about the cards as a resource. Comments centered on the use of specific visual examples for comparisons between food items. A specific example was the use of inexpensive noodles available as small packets or cups that can be easily reconstituted. According to the focus group members, “IMPACT members eat these often and may consume more than 1 serving at a time.” The HCPs were “surprised to see the sodium content per serving” and “appreciated the picture of alternative products that were lower in sodium and available for a similar price.” Another area of discussion related to question 1 was the caloric versus nutritional content of many beverages. Again, many of the HCPs



**FIGURE 2:** One thousand eight hundred–calorie, low-fat choice card







were unaware of the number of calories contained in commonly consumed drinks and were able to provide more specific information on alternative choices. The third area was the simplicity of the cards. Specifically highlighted were the limited use of text and the use of high-quality pictures to fill the space. In question 2, HCPs confirmed that high-quality visual images were necessary to facilitate interactions. Also, the cards needed to reflect foods the IMPACT members regularly ate and that the wording was simple. On the third question, “Which card has been most helpful?” HCPs identified 2 of the cards. The most helpful were the “noodle card with the sodium content” and the “beverage comparison” cards. These were the ones that opened the most dialogues, and the members could link back to their shopping experiences and potential choices for “next time.” The last card-related question, question 4, asked about other recommendations the HCPs thought would help them use the cards more efficiently. To this question, the focus group participants requested cards with calorie information and that addressed dietary concerns for those with specific limitations or restrictions. They identified 3 daily total calorie counts (1500, 1800, and 2000) and three disease states (diabetes, high blood pressure, and high cholesterol). Question 5 was the summation question for any additional input the HCPs had before ending the focus group session. No new content was added, and the session ended. Overall, the HCPs found use of pictures to illustrate the concepts to be helpful, particularly the

inclusion of comparison products. They believed the cards were a good introduction to nutrition and food choices. They stated that the globally identified themes were “good visual examples” and interactive tools with “easily discussed information.” HCPs reported the cards were helpful opening a dialogue with the members.

### Phase Two

Based on feedback from Phase One, specific resources were developed. Individual cards for each of the daily total calories, dietary options for each disease state, and a shopping resource brochure were developed. The information was divided by food groups and priced using the posted prices at grocery stores frequented by the IMPACT population. The brochure could be used by IMPACT members and HCPs who needed recommendations when making a shopping list or planning future meals. Focus group feedback also supported the need for inclusion of chronic health concerns and total daily calorie limits and agreed it was important to be based on a food budget limit of \$100. These resources were made available for HCPs to use at their discretion. HCPs began using the cards immediately during their home-based visits, and feedback was positive. The applicability and relatability of these choices to 1 IMPACT member was demonstrated while out shopping. One of the HCPs reported a member said, “Oh yeah. I forgot about those. I like strawberries.” Several other HCPs reported similar experiences when they used

a

Hand Symbol	Equivalent	Foods
	<b>Fist</b> 1 cup	Rice, pasta Fruit Veggies
	<b>Palm</b> 3 ounces	Meat Fish Poultry
	<b>Handful</b> 1 ounce	Nuts Raisins
	<b>2 Handfuls</b> 1 ounce	Chips Popcorn Pretzels
	<b>Thumb</b> 1 ounce	Peanut butter Hard cheese
	<b>Thumb tip</b> 1 teaspoon	Cooking oil Mayonnaise, butter Sugar

#### Measuring Food Portions Using the Hand Method

**Step 1:** Hold out your hand so you can see the palm. One serving of protein (fish, chicken, beef, pork) is 3 ounces and about the size of your palm—just your palm.

**Step 2:** Make a small cup in your hand with the end of your thumb touching the middle section of your pointer finger. This is about 1 ounce or the size of a serving of raisins or nuts.

**Step 3:** Loosely cup each hand to create 2 small bowls. These 2 handfuls are a serving size for popcorn, pretzels, or chips.

**“Your food choices each day affect your health — how you feel today, tomorrow, and in the future”**

Designed by Gary Sweet and Chris Sullivan.  
PharmD Candidates Class of 2015.



#### THE PLATE METHOD

### FOOD SELECTION AND PORTIONING GUIDE.

FIGURE 3a: Budgetary shopping guide, side 1

them on home-based visits and spontaneously reported the discussion opened additional opportunities for changes, such as how to add more exercise into the day.

## Discussion

Weight management interventions for the SMI population have included randomized, controlled trials and a single-arm pilot study. Previous behavioral intervention initiatives for weight loss and/or management included combinations of in-person support (individual and group) and indirect contact (telephone). A 24-month duration comparative effectiveness trial was done by Appel and colleagues.<sup>16</sup> The objective of this 3-arm, randomized, controlled trial (n = 415 enrolled, 392 completed) was to evaluate 2 behavioral weight-loss interventions. Inclusion criteria were obesity and at least 1 cardiovascular risk factor. Intervention strategies were either remote or in-person and included regular visits with primary care providers. The remote intervention included telephone, a study-specific website, and e-mail contact for weight-loss support. The in-person intervention added group and individual sessions to the 3 remote support strategies. The

third arm, a control group, employed self-directed weight loss. Outcomes were compared between all arms: the intervention groups and the control group and between the two intervention groups. At the 24-month end point, the percentage of participants who lost 5% or more of their initial weight was 41.4% with in-person support, 38.2% with remote support, and 18.8% for the control group. No significant change in weights from baseline to the end of the trial was found between the 2 intervention groups. The IMPACT-based initiative incorporated aspects of this trial. These included face-to-face support and contact with 1 of the team nurses and the psychiatrist and/or psychiatric resident at least once a month for additional support and monitoring.

In a second study by Daumit and colleagues,<sup>17</sup> a single-arm pilot study recruited adults (n = 63 enrolled, 52 completed) from 2 psychiatric rehabilitation day programs. Inclusion criteria were adults (18 years or older), attending the psychiatric rehabilitation programs (1 urban, 1 rural), overweight or obese, a diagnosis of a SMI, and plans to remain at the rehabilitation program for at least 6 months. The 6-month intervention was composed of

b



### Select Healthy Grocery Items with Estimated Cost\*

#### Meats/Eggs

Chicken Breast - 3.5lb bag (\$6.98)  
 Lean Pork - 1lb portion (\$3.68)  
 Fresh Fish (Salmon) - 4 fillets (\$4.98)  
 Lean Beef - 1lb portion (\$3.92)  
 Ground Turkey - 1lb portion (\$2.78)  
 Water Packed Tuna - 1 can (\$1.00)  
 Water Packed Chicken - 1 can (\$1.98)  
 Large Eggs - 8 eggs (\$1.00)  
 Turkey/Chicken Lunchmeat - 1lb (\$3.00)

#### Bread/Grains

Whole Wheat Bread - 1 loaf (\$0.88)  
 Whole Grain Waffles - 6 waffles (\$2.68)  
 Whole Grain Cereal - 21oz box (\$2.18)  
 Instant Oatmeal - 10 packets (\$1.72)  
 Whole Wheat Tortillas - 10 (\$2.18)  
 Whole Wheat Buns - 8 buns (\$1.28)  
 Instant Brown Rice - 8 cups (\$1.68)  
 Dinner Rolls - 24 rolls (\$1.38)  
 Instant Mashed Potatoes - 1 box (\$1.00)

#### Vegetables

Sweet Potato - 1 potato (\$0.88)  
 Frozen Broccoli - 1lb (\$1.47)  
 Bean Mix - 2lb bag (\$1.98)  
 Frozen Mixed Vegetables - 1 bag (\$1.00)  
 Frozen Sliced Carrots - 14oz bag (\$1.00)  
 Iceberg Lettuce - 1 head (\$1.50)  
 Fresh Tomatoes - 6 pack (\$1.50)  
 Fresh Celery - 10 stalks (\$1.98)  
 Fresh Carrots - 1lb bag (\$0.98)  
 Frozen Green Beans - 10oz bag (\$1.00)  
 Stir fry Vegetables - 14oz bag (\$1.00)  
 Frozen Corn - 14oz bag (\$1.00)  
 Onion - 3lb bag (\$3.12)

#### Fruit

Blueberries - 1 pack (\$3.48)  
 Oranges - 3lb bag (\$3.88)  
 Apples - 5lb bag (\$3.77)  
 Bananas - 1lb portion (\$0.55)  
 Grapes - 1lb portion (\$1.98)  
 Strawberries - 2lb portion (\$3.48)  
 Pears - 1 each (\$0.65)  
 Watermelon - 1 mini melon (\$3.24)  
 Cantaloupe - 1 melon (\$2.50)  
 Frozen Orange Juice - 1 can (\$0.98)

#### Dairy

Skim Milk - 1 gallon (\$3.44)  
 Low-fat Yogurt - 4 pack (\$1.00)  
 Light Butter - 1lb tub (\$2.00)  
 Low-fat Pudding - 4 pack (\$1.00)

#### Snacks

Pretzels - 1lb bag (\$1.00)  
 Low-fat Granola Bars - 5 pack (\$1.00)  
 Fruit and Grain Bars - 5 pack (\$1.00)  
 Sugar Free Popsicles - 8 each (\$1.00)  
 Raisins - 1 box (\$1.00)  
 Sliced Almonds - 1 bag (\$2.50)  
 Sugar Free Gelatin - 1 box (\$0.50)  
 Light Popcorn - 8 bags (\$2.00)  
 Special K® Cracker Chips - 1 box (\$2.68)  
 Reduced Fat Lean Pockets® - 1 box (\$2.28)

#### Condiments/Extras

Yellow Mustard - 1 bottle (\$0.68)  
 Reduced Sugar Ketchup - 1 bottle (\$1.49)  
 Reduced Sugar BBQ Sauce - 1 bottle (\$1.88)  
 Reduced Fat Mayo - 1 bottle (\$2.49)  
 Light Salad Dressings - 1 bottle (\$1.00)  
 Sugar Free Syrup - 1 bottle (\$1.00)  
 Reduced Sugar Jam - 1 jar (\$1.75)  
 Mrs. Dash® Salt Free Seasoning - (\$2.28)

\*All prices obtained at stores in Tulsa, OK.

**FIGURE 3b:** Budgetary shopping guide, side 2

group and individual weight management and group physical activity classes. The primary outcome was weight change from baseline to study end point. At the end of the intervention, the authors reported an average weight loss of less than 5 pounds (4.5), a 1.9% decrease in body weight, and an average increase of 8% in distance on the 6-minute walk. This study was one of the first to introduce weight management and physical activity classes into a setting for persons with a SMI diagnosis. In addition, enrollees were not limited to only 1 mental health diagnosis or class of antipsychotic medication. Of the study participants, over half had a diagnosis of schizophrenia or schizoaffective disorder. This study population has a number of similarities to the IMPACT population: diagnoses, setting, and inclusion of interested parties. Although the weight change outcome may be modest, the study authors reported that the average weight gain in populations with a SMI has not been reported, but it is likely higher than the general population.<sup>17</sup>

Daumit and colleagues<sup>18</sup> conducted a longer weight-loss intervention for persons with a SMI. The study population (n = 291 randomized, 279 completed) was recruited from participants attending 1 of 10 community outpatient

psychiatric rehabilitation programs or clinics, were overweight or obese, adult (18 years or older), and had a SMI diagnosis. The objective was to determine the effectiveness of an 18-month tailored behavioral weight-loss intervention. Changes in weight were assessed at 6-month intervals. The intervention arm consisted of 3 sessions: group weight management, individual weight management, and group exercise. The dietary goals for the intervention group included caloric reductions by avoiding sugar-sweetened beverages and junk food, eating more servings of fruits and vegetables daily, smaller portions, and choosing healthy/healthier snacks. Weight data at the 18-month end point indicated that weight loss in the intervention group increased progressively over the course of the study period with a mean loss of 7 pounds. The authors reported that this finding suggests persons with SMI that participated in a tailored intervention were able to lose weight, and the amount compared favorably with weight losses from similar programs in the general population. Similar to the IMPACT program, weight-loss strategies included making healthier food/beverage choices, practicing portion control, and eating more fruits and vegetables, all of which are approaches for the general population to control their weight.

It is hoped that providing dietary options for the IMPACT members in an easily accessible format will help improve their decision-making process. Additionally, financial resources were and are an important consideration for this population.<sup>19</sup> Consideration of cost was an integral part of the development of these decision-making aids. The majority of the population served in the IMPACT program receives federal and state benefits.<sup>20</sup>

## Limitations

The authors acknowledge the limitations of this study. These include the absence of a control group, lack of a standardized survey instrument, and a limited number in the focus group. In addition, the facilitator also functioned as a principle investigator, increasing the potential for interpretation bias<sup>21</sup> although participants frequently voiced personal opinions throughout the process and specifically requested the information and resources developed. This qualitative format, although recognized as a method of cost-effective, focused data collection, does have several potential methodological limitations: There was only 1 session and no follow-up session was planned or provided.

The potential for limitations with follow-up exists. One of the biggest limitations was not evaluating the usefulness of the cards on persons with a SMI. Members enrolled in the IMPACT program may or may not consent to health care activities, such as vital signs, weight, and laboratory work. The ability to consent may be a function of the course of the SMI; one 18-month longitudinal study by Stroup and colleagues<sup>22</sup> found that 24% (n = 273 of 1158) of the participants experienced worsening in at least 1 area of consent-related abilities, and 4% (n = 43) did not meet criteria for consent-related abilities. In 1 weight-loss program for persons with a SMI, although consent rates were high, weight loss did not differ between groups, but Mangurian et al<sup>23</sup> stated a behavioral program was achievable for this population. What this program does offer, however, is the opportunity for HCPs to engage and interact directly with IMPACT members on health-related topics.

## Conclusion

The use of dietary choice cards may assist HCPs in providing concise and appropriate education regarding dietary choices for persons with SMIs. Although data from this study were limited, HCPs were enthusiastic about the decision-making aids. Important aspects of the cards were the use of pictures, easily readable format, and use of concise information. HCPs were also interested in cards pertaining to budget choices for persons with hypertension, diabetes, and dyslipidemia and with 3 calorie limits to

fit the needs of this particular population. These teaching aids were provided and immediately implemented.

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