Wellness Intervention for Patients With Serious and Persistent Mental Illness

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Introduction: Weight gain and obesity that emerge during psychopharmacologic treatment are prevalent in persons with serious and persistent mental illness. Obesity is difficult to reverse, but behavioral programs involving diet and exercise are sometimes successful.

Method: Patients with serious and persistent mental illness living in the community were enrolled voluntarily into the Solutions for Wellness Personalized Program. Participants completed an enrollment survey that provided information for the creation of an individualized management plan that included nutrition, exercise, stress management, and sleep improvement components. Weight, body mass index (BMI, kg/m^2), behavior, and attitudes were assessed at baseline (enrollment) and monthly for 6 months.

Results: During the period of July 1, 2002, through June 30, 2003, 7188 patients with serious and persistent mental illness had enrolled in the program, and 83% were either overweight or obese. Follow-up survey responses taken at 6-month endpoint from finishers (N = 1422) indicated that positive changes were made in diet (91%), exercise (85%), reduced stress (93.8%), and sleep (92.9%). Significant decreases in BMI were associated with changes in diet ($p = .014$) and exercise ($p = .035$). In addition, 97% of participants reported that they were at least somewhat confident in the ability to maintain lifestyle changes, and this confidence was significantly ($p < .001$) associated with reaching dietary and exercise goals.

Conclusions: Patients suffering from serious and persistent mental illness may benefit from participating in wellness intervention programs.

(J Clin Psychiatry 2005;66:1576–1579)

Received Feb. 2, 2005; accepted May 5, 2005. From Lilly Research Laboratories, Eli Lilly and Co., Indianapolis, Ind. (Drs. Hoffman, Ahl, and Schuh and Mr. Meyers and Ms. Jensen), and Patient Marketing Group, Princeton, N.J. (Mr. Shults and Ms. Collins).

This work was funded by Eli Lilly and Co., Indianapolis, Ind.

Mr. Shults and Ms. Collins have served as consultants to Eli Lilly. Drs. Hoffman, Ahl, and Schuh and Mr. Meyers and Ms. Jensen report no additional financial or other relationships relevant to the subject of this article.

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Obesity is prevalent in individuals with serious and persistent mental illness, like mood disorders[1] and schizophrenia,[2] and its occurrence in this population may be greater than the obesity epidemic in the general population.[3] The prevalence of obesity in persons with serious and persistent mental illness may be associated with increased risk for weight gain during psychopharmacologic treatment with depot[4] and oral antipsychotics, both conventional and atypical agents,[5] and tricyclic antidepressants.[6] Additional reasons for increased risk for weight gain may include sedentary lifestyle and poor nutrition,[7] lack of access to adequate medical care, and lack of access to nutrition and exercise programs.[8]

Weight loss in persons with serious and persistent mental illness may be difficult,[8] but behavioral programs involving diet and exercise have met with some success in this population.[9,10] Here we report 1-year survey results from a program that provided individualized education and support for improving overall wellness in persons with serious and persistent mental illness.

METHOD

The Solutions for Wellness Personalized Program is an ongoing 6-month program for patients with serious and persistent mental illness. Psychiatrists and primary care physicians throughout the United States caring for patients with mental illness living in the community were provided with enrollment forms and asked to give them to any patient with serious and persistent mental illness who would benefit. Patients were not required to meet any enrollment criteria, including diagnosis, treatment, weight, or risk for weight gain. Selection of participants was at the sole discretion of the clinician, and the decision to enroll belonged entirely to the patient. Participation in and conduct of the program were independent of input from the participants' physicians.

Participants completed an enrollment survey that queried the self-perceived need to improve overall health and well-being; eat healthier; improve fitness, stress management, and sleep habits; and increase self-esteem. Participants' readiness to change eating habits and to start being more physically active was also assessed. Information on

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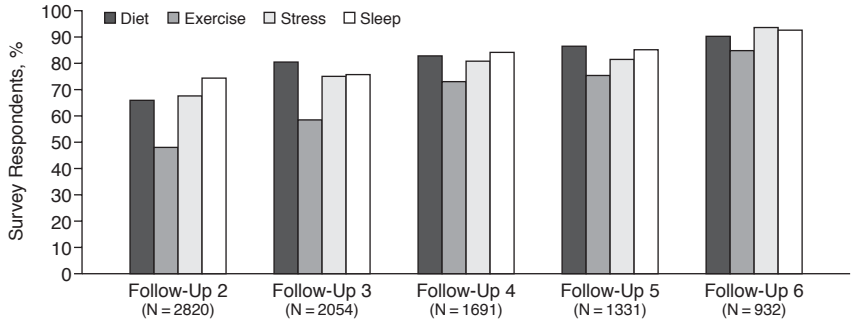
Figure 1. Percentage of Survey Respondents Who Indicated That They Had Made Positive Changes in Diet, Exercise, Stress Management, and Sleep at Each Monthly Follow-Up During a 6-Month Wellness Program[a]



[a]The number of participants who returned surveys is indicated in parentheses for each follow-up.

diet and exercise preferences from the enrollment survey was used to generate a personalized menu planner that included a weekly menu with dinner recipes and a shopping list, which was developed with the assistance of mental health clinicians and registered dietitians. A personalized exercise plan was developed by a public health clinician and a certified health fitness instructor. Participants also received regular educational mailings, such as newsletters that were developed by health care professionals, monthly motivational progress updates, and motivational gifts, like exercise videos.

Participants signed an informed consent statement that allowed the use of their information for the creation of their personalized menu and exercise planners and specified that only nonidentifiable data would be used to evaluate the results from participation in the program.

To monitor the outcome of this program, we summarized the results of the self-reported responses from participant surveys returned during the course of 1 year from July 1, 2002, through June 30, 2003. Height, weight, and body mass index (BMI, kg/m^2) measures were assessed at enrollment and monthly thereafter for the duration of the program. Monthly follow-up surveys assessed self-perceived changes in behavior, such as diet and exercise, by asking participants to select one of the following responses: "I have reached my goal," "I am still making progress," "I gave up for now," or "I didn't need to make a change." Level of participant confidence in maintaining lifestyle changes after program completion was measured on a scale of 1 = very confident to 4 = not very confident. Demographic data regarding participant diagnosis or treatment were not available for this analysis.

At the end of the program, participants were identified as *finishers* if they received all of the mailings, did not opt out, were not attritioned by failing to return 3 consecutive surveys, or were not deactivated owing to lost contact. Among the program finishers, those who completed and returned the final survey were identified as *partial completers*, and partial completers who received the final mailing from the program administrators were identified as *full completers*.

Statistical Methods

Generalized linear models were used to evaluate change in BMI as well as the categorical responses of participant confidence and program completion. Predictors in the generalized linear models included indicator variables for caregiver assistance and reported changes in diet, exercise, sleep, and stress management behaviors. A logistic regression model was utilized to identify which of the above predictors were associated with successful completion of the program. To understand participant progress throughout the program, generalized linear models with repeated measures by participant were fitted for change in BMI and participant confidence by using the methods described above and adding visit to the set of predictors.

RESULTS

Participant Survey Responses

From July 1, 2002, through June 30, 2003, 7188 patients with serious and persistent mental illness had enrolled in the program. Most of the participants (65%) indicated that they wanted to improve their health and well-being, as well as increase self-esteem (20%), eat healthier (6%), and improve fitness (7%), as the most important reason for enrolling in the program. In addition, 90% indicated that they were ready to change their eating habits, and 85% were ready to start being more physically active.

Responses to follow-up surveys indicated that the participants had made positive changes in diet, exercise, sleep, and managing stress early in the program (Figure 1) and that the frequency of reported improvement continued to increase as they progressed through the pro-

gram. At the end of the program, responses from partial completers (N = 932) indicated that 91% had made changes in their diet, 85% had begun exercising, 92.9% experienced improved sleep, and 93.8% had reduced stress.

Participant Disposition

Between July 1, 2002, and December 31, 2002, a total of 3347 participants had enrolled, and by June 30, 2003, 1422 participants (42%) had finished the 6-month program. Among those who did not finish the program, 9% opted out via telephone communication, and 49% were discontinued after failing to return surveys. Participants who reported that they were ready to change their eating habits at enrollment were 56% more likely to finish the program (odds ratio [OR] = 1.56, 95% CI = 1.13 to 2.16, p = .007). There was no difference in the percentage of participants who declared at enrollment that they were ready to make changes in diet or exercise between those who finished versus dropped out of the program.

BMI Changes

Participant baseline BMI calculated from height and weight recorded on returned enrollment forms (N = 7188) indicated that 0.43% of the enrollees were underweight (< 18.5 kg/m^2), less than 9% were of normal weight (18.5–24.9 kg/m^2), 21% were overweight (25–29.9 kg/m^2), 62% were obese (30–40+ kg/m^2), and, for 6%, BMI could not be calculated. Of the program finishers (N = 1422), 872 provided weight information for BMI calculation on the final follow-up survey. The mean ± SD change in weight was –2.77 ± 8.7 kg (–6.1 ± 19.2 lb), and the mean change in BMI was –0.93 kg/m^2. Depending on height, a unit change in BMI may be associated with a weight change of 2.5 to 5.0 kg (approximately 5–10 lb).

Full completers (N = 892) reporting a positive change in diet or exercise experienced significantly greater decreases in BMI from baseline to the end of the program. Adjusted mean change in BMI for full completers reporting a change in diet was a decrease of 0.61 kg/m^2, whereas those full completers who did not make dietary changes experienced an adjusted mean increase in BMI of 0.51 kg/m^2 (p = .014). For those full completers who reported that they were exercising, the adjusted mean change in BMI was a decrease of 0.38 kg/m^2, whereas full completers who reported that they did not exercise experienced an adjusted mean increase in BMI of 0.28 kg/m^2 (p = .035). Age and gender were not significant predictors for change in BMI, nor was having assistance with program adherence.

Confidence

At the completion of the program, 97% of the partial completers reported that they were somewhat to very confident that they could maintain their lifestyle changes.

Throughout the study, confidence in maintaining lifestyle changes was significantly predicted by having a household member who could assist with program adherence (OR = 1.32, 95% CI = 1.12 to 1.55, p = .001) and was associated with continued participation in the program (p < .001). Having the confidence to continue lifestyle changes after program completion was significantly (OR = 1.77, CI = 1.31 to 2.38, p < .001) associated with having assistance in the home, as well as reaching the goal of making changes in diet (OR = 8.35, CI = 4.73 to 14.72, p < .001) or exercise (OR = 2.85, CI = 1.93 to 4.22, p < .001).

DISCUSSION

Survey results from participants in a multifaceted behavioral program demonstrated that individuals with serious and persistent mental illness were able to make healthy lifestyle changes, which helped them to lose weight and gain self-confidence. The success of these individuals was significantly associated with their readiness to make lifestyle changes. These results are consistent with those of a prospective naturalistic study in patients with schizophrenia or schizoaffective disorder who were motivated to change their behavior in order to lose weight and benefited from a weight control program that focused on nutrition, exercise, and motivation.[9]

Assessing a person's readiness for change, especially in an individual with serious and persistent mental illness, is an important challenge. Rogers et al.[11] examined readiness for change among persons with severe mental illness, as assessed by the Change Assessment Scale,[12] and found that their readiness was similar to that of individuals without these challenges. The contribution of readiness for change as a predictor of success has been studied extensively in persons seeking to make lifestyle changes including smoking[13] and substance abuse[14] cessation and weight loss.[15] According to Prochaska and colleagues,[14] the change process involves 5 discrete stages: precontemplation, contemplation, preparation, action, and maintenance. In the first 2 stages, the individual has not yet made a commitment to change. This commitment comes in the preparation stage when the individual has decided to take action. In this study, readiness for change was assessed at program enrollment by asking if the participant was ready to change eating habits and to start being more physically active. Participants who responded affirmatively, as compared to those who responded negatively or "not sure," were significantly more likely to complete the program. Clearly, motivation plays a significant role in making lifestyle changes, even for individuals with serious and persistent mental illness.

While results of the present study are encouraging, they must be viewed in light of various limitations. First and foremost, this was not a prospective, controlled clini-

cal trial but an analysis based upon participant responses to follow-up surveys. Since the data were self-reported, they are subject to participant bias and interpretation. Given that specific psychiatric diagnostic and treatment information was not available, these results cannot be generalized to any particular population of individuals with mental illness. Furthermore, while these results suggest that behavioral interventions may help patients to improve their lifestyle by making healthy choices and losing weight, there are individuals for whom these interventions may not fully resolve weight gain challenges. Indeed, while 42% of eligible participants completed this program, 58% did not. This attrition rate was higher than that reported in schizophrenia patients (35%) who participated in a 12-month weight control study.[9] For individuals without mental illness, attrition rates reported from a weight loss trial comparing Weight Watchers with a self-help program were even lower (29% and 25%, respectively).[16] It is reasonable to assume that participants who dropped out of this program did not experience as much benefit as the completers or they may not have been ready to make the behavioral changes required to reach their goals despite affirming readiness to change at the time of enrollment.

Although studies of weight gain intervention in persons with mental illness are limited, results consistently support at least moderate effectiveness of nutritional education and mild exercise, like walking, on weight loss.[9] Clearly, there is an unmet need for prospective, randomized trials to determine the effectiveness of weight intervention programs that could promote weight loss and perhaps even prevent weight gain in persons with serious and persistent mental illness.

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