Recruitment to Mail and Telephone Interventions for Obesity in a Managed Care Environment: The Weigh-To-Be Project

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Objective: To evaluate the success of mail- and telephone-based weight loss programs in recruiting a representative sample of overweight members of a managed care organization (MCO).

Study Design: Cross-sectional.

Patients and Methods: A total of 1801 members of an MCO were recruited by direct mail, clinic flier, and physician referral for a research study evaluating mail- and telephone-based weight loss programs; 412 additional overweight members of the same MCO were identified in a general member survey for comparison purposes. Body mass index, demographics, diet, and exercise habits were measured.

Results: Study volunteers were heavier, more likely to be women, more likely to be minorities, more educated, and younger than the general sample of overweight members. They also had a more extensive history of dieting, ate a diet higher in fat and lower in fruit and vegetables, and were more likely to report binge eating than the general sample. However, study volunteers reported a higher level of physical activity.

Conclusions: Invitations to participate in weight loss programs can attract large numbers of people in a managed care setting. However, the participation bias in recruitment to such programs is similar to that seen in traditional face-to-face interventions. Women of higher socioeconomic status who are severely obese and who have an extensive history of weight control efforts are more likely to participate. Additional research is needed to find ways to reach more men and older adults.

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For editorial comment, see page 353.

Obesity contributes to the development of a number of serious health problems.[1] This, combined with the fact that the prevalence of obesity has dramatically increased over the past 3 decades,[2] has made obesity the number 1 health concern in the United States today. Successfully addressing obesity as a public health issue requires the accomplishment of 2 objectives: (1) development of efficacious programs for obesity treatment and/or prevention and (2) delivery of these programs to the very large number of individuals who would benefit from them. To date, obesity treatment research has focused primarily on increasing the efficacy of clinic-based obesity treatment programs. As a result, these treatments have improved substantially over the last 20 years.[3] Unfortunately, however, clinic-based treatments for obesity have had a limited reach. Relatively few obese individuals seek out clinical treatments, and the individuals who do are predominately women of higher socioeconomic status (SES)[4] who have extensive histories of unsuccessful weight control attempts,[5] as well as comorbidities such as binge eating.[6,7] If the population prevalence of obesity is to be decreased, it seems that effective obesity management programs need to be developed that attract a more diverse sample of individuals who might benefit from weight-loss counseling.

Weight-loss treatments delivered through either the mail or over the telephone have shown promise as alternatives to intense, clinic-based weight-loss therapy. Studies that have directly compared traditional face-to-face obesity treatments with either mail or telephone treatments have found them to be of similar effectiveness.[8] Such treatments also may attract a larger and more diverse audience than traditional clinical programs. A recent study on preventing weight gain found that women who were offered a mail-based treatment program had higher participation rates than women who were offered a clinic-based version of the same treatment program (84% vs 42%, respectively).[9] Two other studies of mail-based treatments have suggested that they also may attract a more diverse population with respect to age, sex, SES, and weight-loss history.[10,11]

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The present study examined the success in attracting participants into 2 low-intensity weight-loss programs in a managed care organization (MCO). MCO members were recruited for a "research study" evaluating weight-loss programs that might be useful to MCO members. The 2 programs differed from traditional clinic-based programs in that one used mail contacts and the other used telephone contacts. The ability of the programs to attract participation from a diverse cross-section of overweight people was evaluated by comparing the characteristics of study volunteers with those of overweight MCO members responding to a general member survey. The institutional review boards of both the University of Minnesota and HealthPartners Research Foundation approved the research protocols and procedures.

METHODS

Study Setting

The Weigh-To-Be study is an ongoing collaborative study between the University of Minnesota and HealthPartners, a large mixed-model MCO in Minnesota with approximately 700 000 members. Of the MCO's 20 fully owned healthcare clinics, 4 were specifically targeted for the study. Of these 4 clinics, 2 served members within the cities of Minneapolis and St. Paul, Minnesota, and 2 served members of suburbs in the surrounding metropolitan area. The clinics were chosen because of their large and diverse membership.

Recruitment

Three primary recruitment methods were used: direct mailing, marketing materials, and provider referrals. Recruitment flyers that described the study were sent to the households of a random sample of 31 000 adult (more than 18 years of age) MCO members within the 4 targeted clinics. Recruitment materials were posted in the targeted clinics and on a health plan Web site. Physicians in the target clinics also were encouraged via e-mail and face-to-face meetings to refer potential participants. Recruitment continued until the study recruitment goals were reached, which took about 12 months.

Members interested in the study were asked to call a central telephone number for eligibility screening and an explanation of the project. To participate in the study, members needed to be more than 18 years of age, overweight, and not currently pregnant, lactating, or planning to become pregnant in the following 6 months. "Overweight" was defined as having a body mass index (BMI) greater than 27 based on self-reported weight and height. Over the entire year of recruitment, 3294 MCO members expressed interest in the weight-loss study, 2205 were eligible and were invited to a baseline evaluation visit, and 1801 completed the visit and were enrolled in the study.

MCO Members' Survey

To understand whether new intervention approaches being evaluated in the current study were successful in reaching a diverse group of MCO members in need of weight-loss counseling, participants in the weight-loss treatment programs were compared with a random sample of MCO members meeting the same eligibility criteria. The comparison sample was drawn from individuals from the same 4 clinics as treatment participants. Members (n = 2000) who did not receive a mailed invitation to participate in the weight-loss study were asked to complete and return a mailed survey similar to the one completed at baseline clinic visits by enrollees in the weight-loss study. Individuals who did not return the initial survey mailing were mailed 2 reminder letters 1 and 2 months later. Of the 2000 MCO members who were mailed this survey, 1212 responded (return rate = 60.6%). Data from 412 overweight (BMI > 27) survey respondents were compared with data from study enrollees in the present analyses.

Measures

Participants in the weight-loss programs and overweight MCO members in the comparison sample completed the following measures.

Demographics and Weight Characteristics. Sex, ethnicity (white vs other), highest level of education achieved (some college vs less than some college), and age (in years) were assessed.

MCO members reported their weight and height information on the mailed survey. Participants in the weight-loss programs self-reported weight and height information during the initial telephone screening. They also had their weight and height measured during the baseline clinic visit. The correlations between measured and self-reported weight and height measures were 0.97 ($P < .001$) and 0.95 ($P < .001$), respectively. Self-reported weight and height were used for the present analyses because both the participants in the weight-loss programs and the MCO members had this information. Self-reported weight and height were used to calculate BMI.

Behavioral Characteristics. Behaviors assessed in both populations included whether survey respondents had ever dieted, whether they had participated in a commercial weight-loss program during the past 2 years, and whether they were currently participating in any of the following commercial weight-loss programs:

Weight Watchers, Nutri-System, Jenny Craig, TOPS, Overeaters Anonymous, or other group.

The prevalence and frequency of binge eating during the past 6 months were assessed by using the Questionnaire on Eating and Weight–Revised.[12] Binge eating was defined as answering yes to the following questions: (1) During the previous 6 months, have you ever eaten within any 2-hour period what most people would regard as an unusually large amount of food (yes/no)? (2) During the times when you ate this way, did you feel you couldn't stop eating or control what or how much you were eating (yes/no)? The frequency (<2 days/week vs >2 days/week) of binge eating was assessed among the participants who answered yes to both of those questions.

A 24-item dietary fat screener was used to assess individuals' intake of commonly eaten high-fat and high-sugar foods.[13] Response categories ranged from "0, less than once per month" to "4, 5+ times per week" for 13 high-fat items, and from "0, less than once per week" to "4, every day" for 9 vegetable source items. A total fat score was obtained by summing across the fat items, and a total fruit/vegetable fiber score was obtained by summing across the vegetable source items. This fat scale has been shown to be a valid measure of fat intake.[14] The Paffenbarger Activity Questionnaire[15] was used as a measure of total physical activity during the week before the survey. Total minutes and minutes spent in strenuous, moderate-intensity, and mild-intensity activities were assessed. Finally, the frequency of weighing oneself on a monthly basis was assessed.

Analyses

The goal of the present study was to determine the characteristics of volunteers for the weight-loss programs being tested in this study compared with a more general sample of overweight MCO members. Demographic and behavioral characteristics of the 1801 participants randomized into 1 of the 3 treatment groups were compared with those of the 412 overweight (BMI > 27) MCO members who responded to the mail survey. Linear and logistic regression analyses were used for continuous and dichotomous variables, respectively. When behavioral characteristics were compared between groups, sex, education, ethnicity, age, BMI, and clinic membership were used as covariates. SAS 6.12 software was used for all analyses.[16]

RESULTS

Participants in the weight-loss study and the general sample of overweight MCO members differed on several demographic and behavioral characteristics (**Table**). Compared with overweight MCO members in general, study participants were more likely to be female and to have a college education. Study participants also were significantly more likely to describe their ethnicity as something other than white. Weight-loss study participants also were both significantly younger and significantly heavier than the general sample of overweight MCO members.

After controlling for the demographic variables, study volunteers had a greater history of dieting and greater prior use of commercial weight-loss programs than did typical overweight MCO members. Study volunteers also were more likely to meet the definition for binge eating. Furthermore, among those meeting the binge-eating criteria, study participants reported more frequent episodes of binge eating (ie, 47% of study participants reported binge-eating episodes at least twice a week compared with only 18% of typical overweight MCO members). In sum, study participants exhibited more psychological morbidity than the general sample of overweight MCO members.

Study volunteers reported higher levels of dietary fat intake and slightly lower levels of fruit and vegetable intake than overweight nonstudy participants did. However, the study volunteers reported spending more time in physical activity than the typical overweight MCO members.

DISCUSSION

The overall goal of this study was to assess whether weight-loss programs offered to members of an HMO entailing few or no clinic visits would attract broad participation from overweight members. Typical weight-loss programs attract primarily upper-SES obese women with extensive histories of unsuccessful weight control.[17-25] We hoped to show that mail- and telephone-based treatment would attract participation from a more diverse population.

This objective, unfortunately, was not achieved. This study found that volunteers for a study of low-intensity weight-loss treatments were more highly educated, younger, heavier, and more likely to be women than a sample of overweight MCO members who filled out a health behavior survey unrelated to weight loss. In addition, individuals volunteering for the treatment study had more extensive histories of dieting and binge eating, and reported consuming more high-fat foods. Participants in the Weigh-To-Be research study seemed to be more similar to participants in clinic-based weight-loss treatments than to

typical overweight MCO members. In this setting, therefore, it appears that offering treatment options not requiring clinic visits was not successful in reaching a more diverse and representative sample of overweight persons. Members least likely to be represented in the study were men and individuals with less severe weight problems, suggesting that other recruitment approaches, perhaps more targeted, are needed for these groups.

Despite the failure of this project to show that offering alternatives to traditional clinic-based weight-loss treatments greatly extends the demographic appeal of weight control programs, the absolute level of response of overweight persons to invitations to participate in this project were reasonably high. Using the number of mailed invitations as the denominator for population reach, about 6% of all contacted member households responded to the weight-loss program announcement. The general member survey suggested that about 29% of members are eligible by weight to participate in such a program. Thus, it is estimated that about 20% of eligible MCO members responded to the invitation to participate in a weight-loss program. Being able to reach 20% of a target population, which is similar to the estimated yield in another low-contact weight control study using mail-based recruiting,[10] offers encouragement that such programs, if efficacious, could be a valuable service for MCO members.

Table. Comparison of Participants in the Weight Loss Programs With Overweight MCO Members*

Characteristic	Weight Loss Participants (n = 1801)	Overweight MCO Members (n = 412)	*P*
Demographics and weight			
Female, %	71.8	40.2	.001
White, %	91.1	96.3	.001
Some college, %	77.3	71.1	.006
Married, %	70.3	72.6	.352
Mean age ± SD, y	50.7 ± 12.4	59.0 ± 14.3	.001
BMI	33.2 ± 5.6	31.1 ± 4.1	.001
Behaviors†			
Ever dieted, %	85.8	71.9	.003
Participated in commercial program in past 2 y, %	29.3	7.3	.001
Currently participating in commercial program, %	6.6	2.5	.007
Binge eaters, %	26.3	9.3	.001
Binge eating > 2 times a week, %	47.0	18.2	.003
Total fat screener score	34.9 ± 6.4	32.4 ± 6.8	.001
Total fruit/vegetable score	24.6 ± 5.3	24.9 ± 4.9	.013
Physical activity in past week			
Total physical activity, min	66.0 ± 137.0	33.3 ± 114.8	.001
Strenuous activities, min	15.3 ± 49.3	12.9 ± 81.9	.202
Moderate activities, min	27.5 ± 74.5	12.3 ± 54.3	.001
Light activities, min	23.1 ± 100.9	8.0 ± 49.1	.001
Frequency of self-weighing, per month	4.8 ± 9.1	5.0 ± 9.4	.551

*"Overweight" was defined as having a BMI greater than 27. BMI indicates body mass index; MCO, managed care organization.
†Controlled for sex, education, ethnicity, age, BMI, and clinic membership.

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