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Recruiting and retaining young adults in a weight gain prevention trial: Lessons learned from the CHOICES study

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Abstract

Background/Aims—Young adults are at risk for weight gain but little is known about designing effective weight control trials for young adults or how to recruit and retain participants in these programs. The Choosing Healthy Options in College Environments and Settings (CHOICES) study evaluated the effectiveness of a weight gain prevention intervention for 2-year college students. We describe the methods used to recruit and retain the colleges and their students, describe the sample and discuss recommendations for future studies.

Methods—Students were recruited into a 24-month trial of a weight control intervention with assessment periods at baseline, 4-, 12- and 24-months follow-up.

Results—We successfully recruited 441 students through partnerships with three 2-year colleges through a variety of campus-based methods. Ultimately, 83.4% of the randomized cohort participated in the 24-month assessment period. Those retained more often were white (p=0.03), compared to those who dropped out or were lost to follow-up; no other socio-demographic factor (e.g., gender, ethnicity, education), BMI, body fat, waist circumference or weight status was observed to differ between randomly assigned groups.

Conclusions—Two-year colleges and their students are interested in participating in weight-related trials and partnering with universities for research. Researchers must work closely with administrators to identify benefits to their institutions and to resolve student-level barriers to recruitment and retention. Our experiences from the CHOICES study should be useful in identifying effective recruitment and retention methods for weight gain prevention trials among young adults.

Keywords

Young adults; Recruitment and retention; Weight gain prevention trials

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Introduction

Obesity has reached epidemic proportions in the USA and young adults are a particularly high-risk group for unhealthy weight gain.[1] NHANES data from 2010/2011 indicate that 67.1% of 20–39 year-old men and 55.8% of 20–39 year-old women were overweight or obese.[2] Findings from epidemiological cohort studies suggest young adults in their twenties are gaining weight at higher rates than adults in their thirties;[3, 4] approximately 5.5 million people are obese when they reach the third decade of life.[5]

Nearly half (42%) of young adults in the USA attend colleges and universities;[6, 7] thus these campuses may be important settings for weight gain prevention efforts. Research has documented the excess weight gain, poor dietary choices and physical inactivity occurring among 4-year college and university students[1] but much less is known about obesity and weight-related behaviors among 2-year college students. In the USA, 2 and 4-year colleges serve slightly different purposes. Two-year colleges are often preferred by students who cannot afford or are not academically ready for a 4-year university. Many 2-year students transfer to a 4-year university to finish their degrees; however, 2-year colleges may focus on job training for trades.

There are differences in students who opt for 2-year rather than 4-year schools. In one of the first studies of its kind, Laska and colleagues[8] examined data from nearly 17,000 students in 27 Minnesota colleges and universities which showed that 2-year college students – particularly women– had a significantly higher prevalence of overweight and obesity, lower levels of physical activity, and poorer dietary habits compared to those attending 4-year institutions.[8] Two-year college students also more often were married or had a domestic partner, were older, had dependent children, worked for pay and less often had health insurance. With nearly 8 million students attending 2-year colleges, these institutions may be important partners for implementing weight gain prevention programs among large populations of young adults from diverse backgrounds.

Research on interventions to prevent weight gain or to initiate weight loss in young adults is an emerging area.[9] Partridge et al[9] conducted a systematic review of overweight and obesity prevention interventions in young adults (ages 18–35) and identified 21 randomized controlled trials (RCTs) published between 1998 and 2012 that had used mean body weight or BMI as the primary outcome. The majority of studies (62%) included fewer than 100 participants; only 14% (3 studies) evaluated an intervention of 12 months or more. Of studies with an intervention of more than 12 months, only one study had a retention rate of greater than 80%. None of the RCTs studied young adults attending 2-year or community colleges. The authors of the review noted that there had been an increase in the area of research on weight gain prevention for young adults but lamented the fact that the interventions being tested were of short duration, had significant bias and lacked external validity. They also noted that, "…with limited information reported on recruitment methods and time frames, it is unclear which subgroups of the population may be more or less likely to engage in weight gain prevention interventions…Limited research is available on how to

best engage young adults and the most effective methods of recruitment for weight management and/or weight loss studies."

Overall, there is an urgent need for weight control interventions designed specifically for young adults. Therefore, understanding the best ways to recruit and retain young adults into studies is critically important.[10]

The Choosing Healthy Options in College Environments and Settings (CHOICES) study[11] was funded as part of a cooperative agreement with the National Heart, Lung, and Blood Institute to develop and test innovative approaches for weight control in young adults (The EARLY Trials; RFA-HL-08-007).[12] We describe the methods used to recruit and retain participation of 2-year colleges and their students in the CHOICES study, describe the sample, discuss recruitment and retention challenges, and provide recommendations for recruiting and retaining young adults into future research studies based on our experiences in CHOICES.

Methods

CHOICES study design

The primary hypothesis of the CHOICES study was that students randomized to participate in a 24-month intervention arm would experience a smaller increase in mean body mass index (BMI) at the end of the 24-month period compared to students randomized to the control arm. Details of the intervention and conceptual model are described elsewhere.[11] Briefly, the intervention consisted of enrollment in a 1-credit course designed and delivered by the research investigators and offered through the participating 2-year colleges that focused on healthy weight maintenance (appropriate diet, physical activity, stress management and sleep)[13] followed by participation in a social networking website that encouraged weight tracking and self-monitoring, goal setting and interaction about the health behaviors that were emphasized in the 1-credit course. Intervention and control students had health assessments according to the study measurement schedule; control students received health promotion information on a quarterly basis. All intervention and evaluation protocols for the CHOICES study were approved by the Institutional Review Board: Human Subjects Committee at the University of Minnesota.

Recruiting colleges

We identified fifteen 2-year colleges in the Twin Cities area; based on proximity to the university, we chose five colleges as potential participating research sites. College recruitment began with an introductory letter to key administrative decision-makers at each school followed by telephone calls. Face-to-face meetings were conducted at each college during which details of the study were conveyed and expectations of, and benefits to, the colleges were discussed. In most cases a second meeting was held with department chairs or faculty of related programs (for example, health, physical education, and nutrition) to answer specific questions and to assess how the 1-credit course might be offered in the college.

Recruiting and screening students

Based on our experience and formative data conducted in the first phase of the trial,[14] a variety of methods were considered for use in recruiting students into the CHOICES study. Our primary recruitment strategies consisted of: 1) sending e-mails to students via the colleges; 2) at participating colleges, hanging posters with pockets that held information sheets and flyers for interested students to take; 3) setting up CHOICES study information tables at the schools for blocks of time during the school term that were staffed by study recruitment coordinators; 4) asking instructors in related programs to relay study information in classes; and 5) utilizing word-of-mouth and informal peer-to-peer advertising.

Recruiting students required a pre-screening and screening protocol to assure participants met the study's extensive eligibility criteria. Because CHOICES was part of the larger EARLY Trials consortium,[12] some exclusion criteria were required of all EARLY trials while other exclusion criteria were specific to CHOICES. Table 1 shows these exclusion criteria.

Pre-screening of students who expressed an interest in participating in the study occurred either by telephone or in person. Final screening of students to confirm eligibility based on the BMI and blood pressure exclusion criteria was conducted at the baseline visit. Students provided signed consent to enroll in the study, be randomized, and participate in baseline assessments and three additional measurement periods at 4, 12, and 24 months after enrollment. Participants received compensation in the form of a $50 gift card after completing the baseline blood draw and $100 gift cards for completing baseline and each set of follow-up measurements. We also provided participants with results of their health assessments; for those randomized to the intervention, we also provided full access to the CHOICES website and paid the tuition fees for the 1-credit class.

Retaining students

Students were considered members of the cohort (trial participants) once randomized. The study protocol specified that participants could discontinue trial participation by asking to be excused from follow-up measurements and procedures. In addition, women who became pregnant during the trial were excluded from participating in subsequent measurement visits (including the 24-month visit if they delivered prior to that final visit) due to the effect that pregnancy has on weight. Participants who missed an interim visit (month 4 or 12) were retained in the study and their data for the missed assessment period was entered as missing data. Retention was defined as participation in the final 24-month measurements.

Participant data collected at each measurement visit included: 1) height, collected using a Shorr height board (Irwin Shorr, Olney, MD); 2) body weight and percent body fat, collected using a Tanita scale with a built-in body fat analyzer (Tanita TBF-300A Body Composition Analyzer, Arlington Heights, IL); and 3) waist circumference, collected using a Gullick tape measure.[15] Participants also completed a behavioral and psychosocial questionnaire which included constructs reported to be correlates or predictors of obesity among young adults, including eating and activity patterns, sleep and stress.[15] Finally, each

participant provided information on use of medications and any medical event that had occurred since the previous CHOICES measurement visit. At baseline, the same information was collected by asking respondents to answer based on the previous six months.[15]

Data analysis

We used descriptive statistics to summarize data distributions. We compared the socio-demographic characteristics of those who were assessed at 24 months with those who were lost to follow-up or who had discontinued participation before 24 months. We also examined attrition by treatment arm. When comparing treatment arms or other subgroups using statistical tests, we deemed probabilities of 0.05 or less to denote statistically significant differences.

Results

Recruitment of participating colleges

Of the five colleges whose key decision-makers were contacted about possible participation in CHOICES, leaders at three colleges agreed to participate. Leaders at one college could not commit to participation because of other projects occurring on campus, including major construction work. Those at the fifth college declined participation because of concerns about the effect of the 1-credit class on enrollment in other health classes. Leaders at the three participating colleges signed a Memorandum of Understanding with the CHOICES principal investigator that outlined the expectations for the college and the study team. Two of the colleges are in suburban locations and one is an urban college. Average annual enrollment ranged from 9,557 to 12,538 across the three schools; slightly more women than men were enrolled at the three colleges (54% to 61%). The two suburban schools typically enrolled approximately 18% racial/ethnic minority students while the urban school averaged 59% racial/ethnic minority students. In the two suburban schools, approximately 50% of students received grants or qualified for low-income aid while 81% of students on the urban campus received grants or aid.[16–18]

Recruitment of student participants

The study team employed a variety of strategies to recruit student participants. Personnel at each of the three colleges sent out at least two mass e-mail messages to the student body between March 2011 and July 2011, inviting students to participate in a research study about maintaining a healthy weight. Students were recruited to begin the study in the fall or spring semester, creating two waves of students participating in the trial. Colorful posters were hung at each school in March 2011 and remained there during the 9-month recruitment period. Six CHOICES study staff members represented the study at “recruitment tables” at each college on multiple occasions between March 2011 and November 2011, for a total of approximately 300 hours of staff time. Staff handed out flyers, spoke with students and, as time allowed, screened interested students for eligibility.

We considered other recruiting strategies that we did not pursue. Advertising on college televisions was not pursued because the schools had few televisions on campus; furthermore, focus groups conducted with students in the formative phase of the CHOICES

study suggested that approach would be ineffective.[14] We also did not approach Student Life groups because they were not very active on the participating college campuses. During our recruitment period, there was no health fair at which to recruit. Instructors of other courses at two of the colleges relayed study information to students but with minimal success. The college leaders were asked multiple times to advertise the study on the schools' Facebook pages and websites; however, none of the schools chose to implement this method.

There was some success with informal word-of-mouth among students; in an attempt to bolster this method, in July 2011 the CHOICES study investigators obtained IRB approval to offer a referral bonus. Subsequently, CHOICES study staff mailed letters to all current participants asking them to refer friends and classmates for possible participation in the study. The current participants who referred a friend who was judged to be eligible, enrolled in the study, and successfully completed the baseline measurements received a $25 gift card for the referral.

We asked participants to identify how they learned about the study. Table 2 shows the participant-reported recruitment methods, in order of most successful, for the 441 randomized student participants. Across the three schools the most successful recruitment methods were through mass email messages and tables staffed by CHOICES personnel, yielding 32.2% and 30.4% of the randomized participants, respectively. The third most successful recruitment method was the referral of friends using incentives. Of the 122 participants referred using this method, 78 (63.9%) were eligible and enrolled in the study. Of the 441 overall randomized participants in the CHOICES study, referral with incentive yielded 17.7% of the sample.

Prior to adopting the method of referring friends as an incentive-based program, we implemented an informal friend referral program with no incentive given for any friend referred. This recruitment method yielded only 6.3% of the total students recruited for participation in CHOICES but served as the impetus for us to seek IRB approval to implement the refer-a-friend bonus. Using posters and flyers, speaking at college orientation, and asking counselors and teachers to provide information about the CHOICES study in order to recruit students were less successful than other methods and yielded 5.4%, 4.1% and 3.4%, respectively, of the students recruited. Differences in successful techniques differed among the three participating colleges, but the same strategies were among the top three for all campuses.

Table 3 shows the number of interested people (in total and by college) who contacted us about the study, were prescreened and screened for eligibility, were measured, and eventually were randomized. A total of 962 students expressed interest in the study and 441 (46%) of those interested were randomized. Fewer students from the urban campus expressed interest in the study and a smaller proportion were eligible and randomized than students from the suburban campuses (Table 3).

Overall, the most common reasons for ineligibility identified during the prescreening process were: 1) being over the age of 35 (26.5%); 2) having a BMI >34.9kg/m^2 (18.5%); 3)

not being enrolled (or planning to be enrolled) in one of the participating colleges when the 1-credit course was offered (15.7%); and 4) having a BMI <20.0 kg/m^2 (12.8%). Other reasons for ineligibility included: current pregnancy or planning pregnancy in the next two years, birth of a baby in the past six months, planned move from the Twin Cities metropolitan area within 2 years, taking diabetes medication, and attempting to gain weight. Twenty-five individuals who passed the prescreening process (approximately 3% of all interested students) were found to be ineligible during baseline screening and data collection. These included students who had estimated their height or weight incorrectly during prescreening and had an ineligible BMI based on the baseline measurements.

Retention of student participants

Our retention goal was to have at least 80% of the randomized cohort complete the 24-month measurements. This goal was recommended by the EARLY Data Safety Monitoring Boards and the EARLY NIH project officers for all of the studies in the EARLY consortium. We followed several steps to achieve high retention. During recruitment, we outlined the specific expectations of study participants, including agreement to be randomized to trial arm, adhere to the measurement schedules, and commit to 2-year follow-up. As the study progressed, we implemented additional retention strategies. Obtaining multiple forms of contact information, having flexibility with scheduling and conducting follow up visits, providing realistic and tangible incentives for follow up measurements (i.e., $100 gift cards), enlisting support of the registrar offices and sending out tracking postcards (in addition to yearly birthday cards) were retention strategies that appeared to be related to an increase in scheduled measurement visits.

Table 4 shows the participation (i.e., retention) and discontinuation rates at each measurement visit. The overall retention rate for this study was 83.4%. Of those participants who completed both baseline and 24-month follow-up assessments, 2.9% did not complete the 4-month follow up and 3.9% did not complete the 12-month follow up assessment. The most frequent reasons (other than loss to follow up) for formal study discontinuation were pregnancy (33% of discontinuations) and competing time demands (33% of discontinuations). The remaining 34% of discontinuations were enrollees who had been lost to follow up (i.e., unable to be contacted or not responsive to communications from our study team). We classified participants as lost to follow-up only after multiple attempts of contacting them through various channels (i.e., texting, calling, emailing, mailing) had failed and the enrollee missed the 24-month follow-up measurement visit.

Baseline and final characteristics of student participants

Table 5 summarizes the baseline characteristics of the CHOICES study sample and the characteristics of the participants who were assessed and not assessed at the 24-month measurement visit. The total sample at baseline was 67.6% women, 72.6% White or Caucasian and 15.4% Black or African American, with 7.5% identifying as Hispanic. A majority (71.1%) reported an income of less than $12,000 per year. More than half (53.3%) were at a healthy weight based on BMI between 20–24.9 kg/m^2; 32.9% were overweight (BMI between 25–29.9 kg/m^2) and 13.8% were classified as obese (BMI between 30–34.9

kg/m^2). The sample as recruited had slightly more women and minority participants compared to the population of students enrolled at the three 2-year colleges.

The retained sample was similar to the randomized sample with a few exceptions. Non-white participants less often completed the 24-month follow-up visit compared to whites (p=0.03). There was no differential attrition by treatment assignment, with one exception: fewer women randomized to the intervention arm than the control arm (p=0.05) were assessed at a 24-month follow up visit.

Discussion

The CHOICES study was successful in recruiting and retaining both 2-year colleges and a representative sample of their students for a weight gain prevention study. We successfully measured 83.4% of the cohort at the end of the 24-month intervention period; 81.9% of the cohort completed measurements at all three follow-up visits. Approximately the same proportion of participants assigned to the intervention arm as the control arm provided 24-month follow-up measurements. However, fewer women assigned to the intervention arm than the control arm completed the 24-month study. One potential reason for this is that more women in the intervention group became pregnant during the study, and therefore were excluded from further participation. We maintained good relationships with administrative personnel at participating 2-year colleges throughout the study, working closely with them to recruit our cohort, conduct measurements on their campuses with little disruption for the colleges, offer a 1-credit course on wellness, and serve the interests of the colleges that included increasing awareness of health and wellness among their student body.

We learned that 2-year colleges were interested in partnering with research-based universities on wellness-related activities and, once committed, remained good research partners. Our experience indicates the necessity of working closely with college administrators to identify benefits to their institution and institutions' missions and to help resolve institutional barriers. In particular, it is imperative to be clear about each partner's expectations for participation; to that end, a detailed Memorandum of Understanding or similar document that clearly outlines expectations for both parties is an important step. Since CHOICES was a 2-year study, being clear at the onset about what the partners were committing to helped alleviate problems as the study progressed.

We found, as expected, that recruiting 2-year college students into a weight control study was challenging. While we successfully recruited 46% of those who initially expressed interest, that population comprised less than 5% of the total student body at the three colleges. To meet our study's sample size goals, our recruitment period lasted nine months and required nearly two full-time staff to manage the recruitment and consent procedures. Retention efforts were very labor intensive and careful tracking was required. Finding creative ways to schedule participants for their measurement visits was essential. Recruitment and retention of young adults may be challenging due to a number of factors including (but not limited to) the fact that young adults: 1) may believe they are relatively healthy and may not see a need to participate in a health study; 2) are mobile and unable or

unwilling to commit to remaining in a location for long enough to participate in a multi-year research trial; and 3) may struggle to balance a large number of other commitments (such as school, occupational training, work, relationships and parenthood) that diminish their ability to participate in health-related research. This population has competing time demands that may include college studies (either part-time or full-time), work and family obligations. Staff who interact with this population need to be sensitive to these competing demands and accommodate research participants' needs as much as possible. We found that a streamlined process for recruiting, screening, consenting and measurement visits was vital; requiring participants to attend the fewest face-to-face contacts as possible was essential. Our experience suggests that explaining to students how participation in the study may benefit them and others, allowing adequate time to recruit participants and providing financial incentives are important considerations for groups wanting to conduct research with this population.

The sample of recruited students was similar to, but not precisely representative of, the college population from which it was drawn based on available data;[16–18] therefore, external validity of CHOICES findings is limited. As in other health promotion research with young adults, women were over-represented in the study sample.[9] Recruiting men is a particular challenge that has been noted across numerous studies and among adults of all ages. Unlike other health promotion research, more racial/ethnic minority students were represented in our study sample at baseline as compared to the student population of the three community colleges (data not shown).[16–18] This finding suggests that weight management and the CHOICES intervention approaches appealed to minority students, a finding that has been observed in previous weight-related research among 2-year community college student populations.[19] However, we retained fewer minority students than white students at the final follow up visit; successful methods for retaining minority participants in research studies is an important topic for future work.

We believe an important element of our success was the provision of financial incentives for participation in each measurement period. We budgeted for, and spent, approximately $170,000 on financial incentives across the four measurement periods. In addition, we spent approximately $38,000 to provide the tuition costs for those individuals randomized to the intervention arm that required participation in the 1-credit CHOICES course. Because CHOICES was an RCT, maximizing participation in measurement activities was crucial; evaluation of the intervention's ability to create change would have been compromised if we had been unable to recruit and retain the population of interest. As effective programs and best practices identified through RCTs become translated and disseminated into communities, these additional costs for incentivizing measurement activities may not be feasible or necessary. However, these expenses may be needed in the early stages of developing and evaluating public health programs to ensure the internal validity of the research findings.

Evidence from carefully evaluated interventions builds a repository of best practices that communities can use to design and implement programs with larger reach. Working closely with the community stakeholders during the development of the CHOICES intervention was essential. As we designed the intervention we intentionally created a program that could be

translated into practice and implemented with young adults enrolled in 2-year colleges. It is reasonable to imagine that a 2-year college might make a 1-credit course on healthy weight-related behaviors available to students and may even find ways to reduce the cost of the course or make it part of the school's wellness initiatives. It also is reasonable to imagine that another community partner might be interested in continuing to engage the students in wellness activities through a website. If the intervention is shown to be effective in preventing unhealthy weight gain, costs for the dissemination phase shift from incentivizing measurement activities to keeping the students engaged and program activities fresh and relevant.

Weight gain prevention programs for young adults are urgently needed; 2-year colleges may be especially important settings for research evaluating the effectiveness of different approaches. In CHOICES, we learned that, while challenging, it is possible to recruit and retain a sample of community college participants for a 2-year study using a variety of methods. Additional research in this at-risk population is needed; we hope that lessons learned from CHOICES about recruitment and retention will prove useful for this additional research.

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Table 1

Study Exclusion Criteria

Age: <18 years old or >35 years old
BMI: <20 kg/m^2 or BMI > 34.9kg/m^2
Currently trying to gain weight[c]
Lost more than 15 lbs in the past 3 months
Past or planned (within 24 months) weight loss surgery
Current or planned participation in a commercial weight loss program or other diet/physical activity/weight loss intervention study
Regular[a] use of systemic steroids, prescription weight loss drugs, diabetes medications
Cardiovascular event[b] within 6 months
Currently being treated for cancer (other than non-melanoma skin cancer)
Currently being treated for or has an eating disorder
Systolic blood pressure ≥ 160 mm Hg or diastolic blood pressure ≥ 100 mm Hg
Pregnant (current or actively planning), gave birth in last 6 months, lactating, breastfed within last 3 months
Not expected to be available for 24-month intervention
Household member on study staff
No or limited access to the Internet
Not attending one of the colleges collaborating with CHOICES the semester after randomization
Participated in the pilot of the course offered in the intensive intervention phase
Student cannot fit intervention course into class schedule
Investigator discretion (participant language barrier)

[a] Regular use is defined as taking this medication most days of the week for the previous month.

[b] Heart attack, stroke, episode of heart failure or revascularization procedure Abbreviations used: BMI- body mass index

Table 2

Number of student participants recruited from each participating college by referral method

Two-year College	E-mail	Information table	Friend *With Incentive*[b]	Friend *Pre-Incentive*[c]	Posters/Flyers	College Orientation	Counselor or Teacher	Other[a]	Total, All Methods
SUBURBAN 1	86	43	26	13	13	11	5	0	197
SUBURBAN 2	32	73	45	6	8	3	9	1	177
URBAN	24	18	7	9	3	4	1	1	67
Total, all colleges	142	134	78	28	24	18	15	2	441
% of total sample	32.2%	30.4%	17.7%	6.3%	5.4%	4.1%	3.4%	0.5%	100%

[a] Other methods include one student who heard about the study in his community and one student who heard about the study from the University of Minnesota website.

[b] Participants were recruited through the refer-a-friend recruitment method with a $25 incentive after July 2011.

[c] Participants were recruited through informal word of mouth before July 2011. No referral incentive was provided.

Table 3

Student participant recruitment experience, by participating college

Two-year College	Number Interested	Number Eligible/Measured	Number (%)Randomized[a,b]
SUBURBAN 1	392	198	197 (50.2)
SUBURBAN 2	357	178	177 (49.6)
URBAN	213	67	67 (31.5)
Total	962	443	441 (45.8)

[a] Two eligible students withdrew from the study before they were randomized

[b] The percentages represent students randomized among those interested

Table 4

Number (%) of student enrollees who participated in or missed/discontinued participation by follow-up visit

	Baseline	4-Month Visit	12-Month Visit	24-Month Visit
Participated	441 (100.0)	407 (92.3)	392 (88.9)	368 (83.4)
Missed Visit	N/A	13 (2.9)	17 (3.9)	24 (5.4)
Discontinued participation by timepoint	N/A	21 (4.8)	11 (15.1)	49 (11.1)
Discontinued participation (Cumulative)	N/A	21 (4.8)	32 (7.3)	73 (16.6)

Table 5

Characteristics of the CHOICES sample at baseline and by 24-month follow-up status and random assignment

	Total (n=441)	Follow-up status (n=441)		Discontinued[a] (n=73)	
		Completed 24-month follow-up assessment (n=368)	Discontinued[a] (n=73)	Control (n=37)	Intervention (n=36)
Randomized to intervention arm	50.8	51.1	49.3		
Women, %	67.6	66.6	72.6	62.2	83.3
Race/ethnicity, %					
White	72.6	75.3	58.9	54.0	63.9
Non-white					
Black or African-American	15.4	13.0	27.4	35.1	19.4
American Indian or Alaska Native	0.4	0.5	0.0	0.0	0.0
Asian	6.1	6.0	6.8	8.1	5.6
Native Hawaiian/other Pacific Isl	0.2	0.0	1.4	2.7	0.0
Multi racial	5.2	5.2	5.5	0.0	11.1
Hispanic or Latino origin, %	7.5	7.6	6.8	8.1	5.6
Highest household education					
College graduate or > 4 year college, %	48.9	50.4	41.2	37.1	45.4
Currently single or casually dating, %	54.6	54.2	56.2	59.5	52.8
Age at randomization, years, mean (SD)	22.8 (5.0)	22.8 (5.0)	22.7 (4.8)	22.8 (5.0)	22.7 (4.8)
Annual income less than $12,000, %	71.1	72.3	64.1	65.6	62.5
BMI, mean (SD)	25.4 (3.8)	25.3 (3.7)	25.9 (4.1)	26.4 (4.2)	25.3 (4.1)
Weight status, %					
Normal weight, BMI <25.0	53.3	53.0	54.8	46.0	63.9
Overweight, BMI ≥ 25	32.9	34.5	24.7	29.7	19.4
Obese, BMI ≥ 30	13.8	12.5	20.6	24.3	16.7

[a]Discontinued includes those lost to follow-up, withdrawn, or ineligible due to pregnancy at 24 months