Published in final edited form as:

J Cancer Educ. 2016 June ; 31(2): 366–374. doi:10.1007/s13187-015-0858-4.

Results of a Nutrition and Physical Activity Peer Counseling Intervention among Nontraditional College Students

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Abstract

Health promotion efforts targeting nontraditional college students (older, part-time enrollment, working) may be an optimal way to reach large populations that potentially face health disparities. A randomized trial was undertaken to examine the feasibility of a nutrition and physical activity behavioral intervention among nontraditional undergraduate college students at a large urban public university. Over 8-weeks, participants received either 1) a brief tailored feedback report plus 3 motivational interviewing-based calls from trained peer counselors (intervention; n=40) or 2) or the report only (control; n=20). Participants mean age was 32 years (SD=10), 58% were female, 47% were racial/ethnic minorities, and 25% reported receiving public health insurance. Most (78%) intervention group participants completed at least 2 of 3 peer counseling calls. At follow-up, those in the intervention vs. control group self-reported beneficial, but non-statistically significant changes in fruits & vegetables (+0.7 servings/day), sugary drinks (−6.2 ounces/day), and fast food visits (−0.2 visits/week). For physical activity, there was a non-statistically significant decrease in moderate-vigorous physical activity (107.2 minutes/week) in the intervention vs. control group. Overall satisfaction with the program was high, although there were recommendations made for improving the structure and number of calls. Findings indicate the intervention was feasible with promising effects on nutrition behaviors and the need to better target physical activity behaviors. Future work entails implementation in a larger sample with objectively measured behaviors.

Introduction

Interventions to promote nutrition and physical activity behaviors are particularly needed in groups that face health disparities (e.g., low-socio-economic status, racial/ethnic minority populations) to prevent obesity and chronic diseases [1–4]. A large body of work focuses on colleges as a setting to conduct health behavior interventions due to opportunities to reach large populations, employ multi-level strategies, and target adults in the time of transition from adolescence to young adulthood. Accordingly, there is a body of research examining

diet and physical activity interventions among young adults enrolled in college [5]. However, many college settings offer an opportunity to reach nontraditional college students, who are characterized by being older, being enrolled part-time, working part- or full-time, and/or having family responsibilities in addition to attending college [6]. Nontraditional students are a large and growing population; indeed, from 2010–2020 in the U.S., enrollment of students 25 years old or older will be nearly double the expected rise in students under 25 (20% vs. 11%) [7].

Although there is not direct surveillance of health among undergraduate nontraditional students, socio-demographic factors that characterize nontraditional students are associated with health risk behaviors and obesity. To illustrate this issue, one can review national demographic data of U.S. undergraduates. For example, more part-time students indicated belonging to a racial/ethnic minority group compared to full-time students (Black: 15.2% vs. 13.3% and Hispanic: 15.0% vs. 13.7%); this is reversed for White students (60.1% vs. 62.6%) [8]. Examining students' parents' highest level of educational attainment (an indicator of students' socio-economic status growing up), more part-time students had parents with a high school education or less compared to full-time students (40.3% vs. 29.9%) [8]. Thus, health promotion efforts that target nontraditional students may not only be a way to reach large populations and employ multi-level strategies as noted above, but also be an optimal way to reach health disparity-facing populations who have traditionally had less access to health promotion efforts. Yet, there is a dearth of health behavior promotion research focused on nontraditional college students.

While all students face academic pressures, as well as new social and physical environments, nontraditional students likely have differing needs for health promotion due to the particular pressures and time demands they face (e.g., employment, having dependents, etc.). They may also have different perceived barriers compared to more traditional students to participating in health behaviors, such as physical activity [9]. To address their particular needs, nontraditional college students would benefit from a health promotion approach that prioritized the impact of life experiences and social relationships on health behaviors. The Social Contextual Model [10] explicitly incorporates these factors into the intervention approach. Studies have demonstrated that developing an intervention based on social context has been found to be effective and has led to beneficial outcomes across varying population groups that experience health disparities [11–13]. Therefore, the overall objective of this study is to report the feasibility, acceptability, and preliminary efficacy outcomes of a two group (tailored feedback report vs. tailored feedback report plus 3 counseling telephone calls designed using the Social Contextual Model delivered by trained student peer counselors) 8-week randomized trial targeting nutrition and physical activity behaviors among nontraditional undergraduate college students.

Methods and Materials

Study procedures

This study was conducted at a large public 4-year university that has the most racially/ethnically diverse student body in New England. Among undergraduates, 44% are from a racial/ethnic minority group; mean age is 25 years old; 31% are enrolled part-time, and 1/3rd

are Pell-grant eligible, which is federal financial aid targeted to the lowest income student/families [14, 15].

Recruitment methods included in-person recruiting on campus, posted notices, and listserv emails. Interested individuals from all methods completed a paper-based screening questionnaire which was returned to the Research Assistant to determine eligibility. Eligibility requirements were: currently enrolled undergraduate students; high school completers; 24 years or older and/or part-time students; have no contraindications to physical activity; willing to be randomized into either study group; able to give informed consent; and be below recommended guidelines for at least 1 of 4 health behaviors: fruit and vegetable intake (<5 servings/day), sugar sweetened beverage intake (>8oz/day), fast food intake (at least 1 time/week), or moderate-vigorous physical activity (<150 minutes/week) [16]. Eligible participants providing informed consent were randomized into the intervention or control group using a 2:1 ratio. Participants also completed a paper/pencil baseline questionnaire. Participants were re-contacted 8 weeks after baseline to complete a follow-up paper/pencil questionnaire. Participants received \$5 for completing the screening and \$75 for completing the follow-up questionnaires.

Control and intervention groups

Participants assigned to the control group received a tailored single page report presenting their baseline levels of diet and physical activity behaviors, recommended levels of these behaviors, and brief bulleted tips and links to health-related websites by postal mail.

Participants assigned to the intervention group received the same tailored report in the mail. In addition, they received three telephone motivational interviewing-based counseling sessions with a student peer counselor (see Table 1). The counseling calls were directed by a written guide prepared by the study authors following principles of motivational interviewing [17], the Social Contextual Model [10] and information obtained during qualitative formative research [18]. Our intent was to create a guide that was both highly structured by providing wording examples, sentence stems, and reminders to provide reflections to help ensure high fidelity to our counseling protocol, but also flexible enough so that the peer counselors could draw on their unique perspective as a college student.

Variables

Participants completed standard questions about socio-demographics and financial considerations [19]. Primary outcomes were: (1) Fruit and vegetable intake via the 7-item Block Food Screener [20] which assesses frequency of post-month consumption of fruit juice, fruit, vegetable juice, salad, potatoes of any kind, vegetable soup, and any other vegetables and has shown adequate validity with a full-length food frequency questionnaire (Spearman r value = 0.71 for fruit/vegetable servings). (2) Sugary drink intake via the 7-item Beverage Questionnaire [BEVQ],[21] which assess frequency of past-month consumption of common sugary drinks including sweetened juice drinks, soda, and energy drinks. Of note, 100% fruit juice is not included as a sugary drink. The BEVQ has shown adequate reliability and validity with 4-day food intake records (Spearman r value = 0.409 for grams of total sugar-sweetened beverages). (3) Fast food intake via a 1-item question: "In the past 7 days,

how many times did you eat fast food? Include meals eaten at work, at home, or at fast food restaurants, carryout or drive-through, such as food you get from Dunkin Donuts, McDonald's, Panda Express, or Taco Bell.”, which was based on a question derived from a large population-based survey [22]. (4) Physical activity in a usual week via six questions from the Behavioral Risk Factor Surveillance Survey assessing frequency and duration of moderate and vigorous physical activities. This measure has shown moderate-substantial test-retest reliability and poor/fair – fair/moderate validity compared with objective measurements [23]. Secondary outcomes were psychosocial variables: [24, 25] self-efficacy and stages of change and goal-related variables: [26] goal commitment and goal difficulty. Each psychosocial and goal-related variable was measured separately referring to each of the four behavioral outcomes.

Perceptions of the counseling calls were assessed by asking intervention group participants to rate the helpfulness of the calls, whether they would recommend the program, and other related questions. Participants also responded to 18, 7-point Likert scale questions with responses measured on a scale of 1 (not at all) to 7 (very much) used in previous studies [27, 28]. Ratings were averaged within groups corresponding to 4 characteristics: understandability (4 questions: e.g., How clear were the calls from your phone coach?), relevance (5 questions: e.g., How much did you think the calls from your phone coach were developed for someone like you?), appeal (5 questions: e.g., How interesting were the calls from your phone coach?), and persuasiveness (4 questions: e.g., How likely is it that you could make changes in your behavior or lifestyle based on the calls from your phone coach?). There were also several open-ended questions asking participants to write in additional feedback (e.g., what parts of the calls from your phone coach did you like best? What parts of the calls from your phone coach did you like least?). In addition, the first seven intervention group participants to complete the follow-up survey were invited to participate in qualitative interviews using a semi-structured interview guide to further describe their experience with the intervention. Five of these participants agreed to participate and completed interviews. All interviews were recorded, transcribed, and reviewed by both LMQ and JAW so that themes could be identified and summarized.

Statistical Analyses

Statistical comparisons of baseline socio-demographic and behavioral variables between the randomized groups were conducted using a Fisher's exact test for categorical variables and a student's t-test for continuous variables. Using the same statistical tests, nutrition and physical activity continuous outcome variables were analyzed as the change from baseline to follow-up, and 95% exact confidence intervals were generated for the treatment differences. Psychosocial and goal-related variables were also analyzed as the change from baseline to follow-up, with 95% exact confidence intervals generated for the treatment differences. For qualitative data, each author reviewed the transcripts from the 5 qualitative interviews as well as the responses to the open-ended questions on the follow-up survey. We summarized and discussed the themes and present these data to help explain participants' satisfaction with the intervention.

The results presented that report change from baseline includes data from participants who completed both baseline and follow-up assessments. In addition, an intention-to-treat (ITT) analysis with a baseline value carried forward approach for missing data was also conducted (data not presented). This approach was considered conservative because it assumes no change from baseline to follow-up for participants with missing data. The direction of effects and patterns of statistical significance were unchanged compared to the primary analysis population.

Results

Of 165 who took the eligibility survey, 105 were excluded for not meeting the eligibility criteria (n=101) or being lost-to-follow-up prior to consent/randomization (n=4) (Figure 1). The most frequent reasons for being ineligible were not meeting criteria for being nontraditional (56%), being a graduate student (19%), and having a medical contraindication (11%). Sixty participants were enrolled. Forty were randomized to the intervention group and 20 were randomized to the control group. The on-campus recruitment table (52% of total sample) and campus-wide emails to undergraduates (38% of total sample) accounted for the majority of enrolled participants. Those who were lost-to-follow-up were older than the participants who completed the follow-up assessment (42 years vs. 31 years), and 56% of completers were female compared to 83% of those lost-to-follow-up.

Socio-demographic characteristics of participants are shown in Table 2. Approximately half reported belonging to a minority race/ethnicity group and ¼ reported financial limitations. Of the participants who worked, average working hours per week was 29.4. There were no statistically significant differences between the intervention and control groups in the socio-demographic variables listed in Table 2 or the baseline outcome variables listed in Table 3, with the exception of intake of fruits and vegetables where the intervention group reported fewer baseline servings/day compared to the control group (3.5 vs. 4.6, $p = 0.02$).

Among intervention group participants, 42.5% completed all 3 calls, 35% completed 2 calls, 15% completed 1 call, and 7.5% completed 0 calls. The percentage of participants completing a call about specific behaviors was 90% (physical activity), 80% (fruits and vegetables), 70% (sugary drinks), and 65% (fast food). Average length of calls was 42.6 minutes (call 1), 20.6 minutes (call 2), and 27.1 minutes (call 3).

As shown in Table 3, there were beneficial but not statistically significant changes in nutrition behaviors: an increase of 0.7 servings/day of fruits and vegetables, a decrease of 6.2 fluid ounces (~¾ cup) of sugary drinks/day, and a decrease of 0.2 visits/week to fast food restaurants. For physical activity, there was a non-statistically significant decrease in minutes of moderate-vigorous physical activity (107.2 minutes/week) in the intervention group compared to the control group. When participants' physical activity was categorized as above or below recommended weekly guidelines, the percentage of individuals who moved from <150 minutes/week at baseline to ≥150 minutes/week at follow-up was 50% in the intervention group and 40% in the control group (data not shown). When the outcome analyses were restricted to intervention group participants who completed a call about the targeted behavior and who had follow-up data vs. the control group, the treatment

differences between intervention and control groups remained not statistically significant but were larger: an increase of 0.9 servings/day for fruits and vegetables, a decrease of 8.7 fluid ounces for sugary drinks, and a 0.6 decrease in visits per week for fast food. The results for physical activity continued to favor the control group although the difference was smaller (increase of 11.5 minutes/week in the intervention group vs. 100 minutes/week in the control group). The majority of psychosocial variables showed beneficial, but small and not-statistically significant changes in the intervention group vs. the control group (data not shown).

In terms of intervention participants' feedback about the program, among intervention participants who completed the final survey (n=36; 1 participant who did not complete any calls did not complete these questions), the majority (97.2%) reported setting goals related to nutrition, physical activity, or weight in the last semester and 91.7% reported that they met some or all of their goals. Most (66.7%) reported the calls to be very helpful in helping them set personal goals for changing their health habits, this sentiment was reflected in comments such as: [the calls] "helped me track my progress and think about the changes I've made and need to continue to make". Those who reported that the calls were less helpful felt the calls were not motivating, for example: "I was asked about the things I do. I was never challenged to do more". More than half (60%) found the number of calls to be "just right". However 31.4% thought the number of calls were "not enough", for instance one participant indicated a good number would be: "five – more coaching and suggestion on what goals to set plus ways to be motivated to stay with commitment" and another participant said "more shorter calls would've been beneficial." Most participants reported that they would be very or somewhat likely to consider participating in the program again themselves (83.3%) and recommend it to other students (80.5%).

On the 7-point satisfaction scales, the average rating of understandability was 5.6 (SD=1.1), relevance was 5.2 (SD=1.3), appeal was 4.8 (SD=1.8), and persuasiveness was 5.8 (SD=1.2). To briefly illustrate positive feedback regarding relevance, students commented: "College student-wise, she was right about the choices offered to us in the machines and the cafeteria"; "...it was geared towards someone who has a busy schedule"; and "finding and fitting eating healthy into my budget. It's hard to eat healthy when you're constantly watching your pocket"; while less positive feedback included "meeting most of the goals already" and "some material was common knowledge to me." Several students commented that the parts of the calls they liked the least was when the counselor was providing "repetitious info and questions"; when it felt like the "coach was reading from a script", and the desire for more specificity about goals, guidelines, and suggested resources. Findings from the 5 interviews conducted with participants mirrored this feedback; participants largely focused on disliking the portions of the call that felt scripted, the desire for more specific/prescriptive information from the counselors, and the desire for more calls with more education included. While the interviews were designed to elicit aspects of the calls they would like to change, participants also spontaneously noted positive aspects such as they were still thinking about the goals that they made. In general, participants found the tailored feedback report to be tailored to them, yet not overly helpful and included information that they already knew.

Discussion

We conducted a small randomized trial to assess the feasibility and preliminary efficacy of a nutrition and physical activity intervention that was delivered by trained student peer counselors to nontraditional undergraduate college students. We found that our intervention approach was feasible, as evidenced by the successful recruitment and retention of counselors and student participants, implemented with acceptable levels of fidelity, as evidenced by the numbers of completed counseling calls, and acceptable to participants. While differences in behavioral outcomes did not reach statistical significance, we did find evidence of preliminary efficacy for nutrition behaviors. For physical activity, we suspect that participants in the intervention group (vs. those in the control group) may have experienced an ‘education’ effect in which they learned about what did and did not count as moderate physical activity, and thus were more accurate in reporting at follow-up.

Feedback obtained by intervention group participants revealed ways in which the intervention can be improved in the future. First, students expressed a desire for the calls to contain more specific information, goals, and strategies as well as to have the counselors sound less repetitive or scripted. This finding reveals the inherent difficulties of working with non-professionally trained peer counselors in that they can provide unique insight into the daily context of the student participants, yet they need more structured guidance in the delivery of both motivational interviewing and nutrition/physical activity education. Future studies may wish to provide increased practice during training to maximize counselors’ ease of use of the counseling call guide, particularly their use of simple and complex reflections. Also, future studies could provide clear information to the participant about the counselor’s background and training. Furthermore, future programs could provide additional materials, such as informational sheets with specific tips and strategies to provide to participants, which may be aided by a computer-based system that would make it easier for counselors to pull from a standardized bank of resources as well as increased ease in navigating the guide.

While there is a wide array of research studies that have demonstrated generally favorable effects of interventions for nutrition and physical activity behaviors and/or weight management in college populations,[29, 30] the majority of these studies have focused on younger, traditional college students. Strategies employed in intervention studies focused on this age group may not have high external generalizability to nontraditional college students due to the unique social and environmental characteristics that accompany nontraditional student status, including part-time enrollment, employment, child/adult care duties, financial independence, and/or responsibilities of commuting to campus. Recent reviews of the literature have documented and called for additional research among adults transitioning to independence (“emerging adulthood”) outside of traditional college settings and populations [5, 31]. In a review of studies conducted among 2-year college students, only three intervention studies were identified, only one of which focused on diet outcomes [32].

Our intervention study is unique in that it is situated within a 4-year university, a setting that often has an infrastructure more supportive of human subjects research, and focuses on nontraditional students reflecting a diverse background of age, racial/ethnic backgrounds, and financial limitations. While this broad representation may make intervention message

targeting potentially more challenging, we employed an intervention approach that was highly adaptable and personalized to each students' social context through the use of motivational interviewing. Programs targeting a range of ages may also be of potential interest to university administration who would act as intervention adopters, in that a single program could be used by all students. Thus, in future research, inclusion and exclusion criteria should be modified to fit the population being targeted.

This study included a number of limitations. First, the measures were brief and self-reported. They were chosen to balance the need for psychometrically appropriate measures that do not overly burden participants in response time or complexity. Future studies should employ objective measures when possible, such as accelerometry for physical activity. We also had a small sample size, in which our power was further limited by a 2:1 randomization scheme, which hampered our ability to reach statistical significance. However, the main goal of the study was to evaluate feasibility; larger sample sizes would be needed in an efficacy trial to allow for greater generalizability and external validity. Our randomization also appeared to be effective, as represented by socio-demographic characteristics that were generally well distributed between the two groups. In addition, the control group did receive tailored feedback and targeted tips. This may have activated some individuals to change their behavior more than a "usual care" control group, thereby masking group differences. Yet, it was determined that a brief intervention even for the control group, was important to increase the appeal of the study to potential participants. In the future, a wait list control group may be an optimal choice so that both students and the college administration can feel that all students will receive the chance to benefit from the intervention. Finally, possible threats to the internal validity of the study include our selected psychosocial and goal-related variables which showed generally small and not statistically significant changes, indicating that other unmeasured variables may be behind the beneficial behavioral changes and the possibility that the experimental group discussed aspects of the intervention with control group participants.

This is one of the first behavioral interventions targeted to nontraditional college students, a large and growing group of underserved adults. As a demonstration of feasibility, it is notable that our sample was all nontraditional students and yet the retention rate for this non face-to-face intervention was still 90%. Although we did not assess cost in this study, the training and supervision of student peer counselors can be a fairly cost effective way to deliver this intervention (when compared to professionally-trained counselors) and is also consistent with the educational mission of universities/colleges. The data presented in the Table 3 will allow future researchers to calculate the required sample size for their studies, depending on the primary outcome(s) selected. The findings indicate that the intervention showed support of feasibility, preliminary efficacy, and satisfaction among participants. After consideration of potential modifications, including the use of objective assessment measures, refining the counselors training and call guide, switching to shorter more frequent calls, and potentially using a computer-based platform, this trial has promise for being tested in a larger sample with adequate power to detect statistically significant changes in diet and physical activity behaviors among nontraditional college students.

Acknowledgments

This work was supported by funding from the National Cancer Institute at the National Institutes of Health [grant number 5R03CA139943]; and from the National Library of Medicine at the National Institutes of Health [grant number T15LM007092] from a post-doctoral fellowship to L.Q. The National Cancer Institute and the National Library of Medicine had no role in the design, analysis or writing of this article. The authors acknowledge scientific mentoring provided by Robert H. Friedman, MD and Glorian Sorensen, PhD and technical assistance in data analysis provided by Heather Kelley, MA and in implementing the study protocol provided by Hillary Bishop, MPH and Nathan Brooks, MD, MPH. Finally, the authors thank the many students and staff members who supported this research project.

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Figure 1.
Participant flow through study

Table 1**Description of Description of Telephone Counseling Calls**

General call information	
Order of behavioral topics	<ul style="list-style-type: none"> The first counseling call focused on moderate physical activity plus one of the three nutrition behaviors (fruits and vegetables, sugary drinks, or fast food, as chosen by the participant), while the latter two calls each focused on one of the two remaining nutrition behaviors
Calls 2 & 3	<ul style="list-style-type: none"> Subsequent calls began with checking in about the behavior(s) discussed during the previous call
Calls recording	<ul style="list-style-type: none"> Counselors asked participants' permission to record all counseling calls.
Counselor reminders	<ul style="list-style-type: none"> Counselors were prompted to provide reflections, record structured (e.g., number on scale of 1 to 10 indicated by participant on assessment of importance) and unstructured (e.g., notes in each section), and were provided with key demographic information about the participant in the guide
Resources	<ul style="list-style-type: none"> Counselors had access to additional tips and online resources, which they were encouraged to share with participants as needed
Call protocol	<ul style="list-style-type: none"> Call attempts were made within a 10-day period, followed by a 4-day "nocall" period
Quality assurance	<ul style="list-style-type: none"> Counselors met with L.M.Q. and J.A.W. approximately every two weeks to receive feedback on their calls and discuss counseling strategies
Counselor training	<ul style="list-style-type: none"> Over 4 in-person sessions, the training consisted of didactic content on motivational interviewing, nutrition and physical activity guidelines, study specific protocols (e.g., how and when to record phone calls), dedicated time to practice counseling, and provision of individual and group feedback about the counseling sessions Students were asked to practice providing counseling to family and friends in between sessions At the end of the training, students recorded an 'evaluation' call with a volunteer, which was assessed by L.M.Q. and J.A.W. Students conducting calls that met threshold criteria (i.e., a rating of 6 or 7 on the global empathy and spirit of MI (e.g., asking permission, supporting the participant and not confronting or giving advice)) [33] were invited to serve as peer counselors Students received \$50 for completing the training Seven students (either current or recent undergraduates) underwent peer counselor training; 3 students dropped out at various stages resulting in 4 students serving as peer counselors in the study Counselors received either independent study credit or were paid an hourly wage during the study
Counseling call guide sections followed for each behavioral topic	
Introduction	<ul style="list-style-type: none"> Introduction to study and topic of today's call Review of confidentiality/privacy of information discussed & reminder that call will be recorded
Feedback	<ul style="list-style-type: none"> Counselor compared level of behavior reported on baseline survey to recommended guidelines Counselor began to collect information about the behavior (e.g., types of physical activity that the participant enjoys doing)
Assessment of importance and confidence	<ul style="list-style-type: none"> Counselor asked participants to rate how important the behavior was to them, how confident they were they could positively modify the behavior, based on a scale of 1 to 10.
Social contextual Factors	<ul style="list-style-type: none"> Counselor asked participants to describe social and contextual factors, broken up into categories derived from our formative research including individual (time, stress, money), interpersonal (family, friends), work environment (co-workers), and community/school (neighborhood safety, vending machines at school) that might influence nutrition and physical activity behaviors
Assessment of motivation	<ul style="list-style-type: none"> Counselor asked participants how motivated they were to change the targeted behavior

Goal setting	<ul style="list-style-type: none">• If participants were motivated, the counselor led them through a short- and long-term goal setting exercise drawing on information on past attempts at changing and identifying potential resources and social support in supporting the change• If participant were not motivated, the counselor asked hypothetical questions designed to stimulate further thinking (e.g., “Let’s imagine for a moment that you did increase your physical activity. How would your life be different?”).
Summary	<ul style="list-style-type: none">• Counselor summarized conversation and asked if there was anything else that the participant would like to discuss

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Table 2

Socio-Demographic Variables at Baseline^a

	Total (n=60) ^b			Intervention (n=40)			Control (n=20)		
	n	%		n	%		n	%	p
Age, years ^c	32.2	10.0		32.2	10.1		32.3	10.1	0.96
Gender									0.35
Female	35	58.3		25	62.5		10	50	
Male	25	41.7		15	37.5		10	50	
Hispanic or Latino Ethnicity									0.57
Yes	7	11.7		4	10.0		3	15.0	
No	53	88.3		36	90.0		17	85.0	
Race									0.08
Black or African American	10	16.9		9	22.5		1	5.3	
White	27	45.8		15	37.5		12	63.1	
Other	12	20.3		7	17.5		5	26.3	
2 or more races	10	16.9		9	22.5		1	5.3	
Work for Pay									1.0
Yes	42	70.0		28	70		14	70.0	
No	18	30.0		12	30		6	30.0	
Student Enrollment									0.16
Full-Time	43	71.7		31	77.5		12	60.0	
Part-Time	17	28.3		9	22.5		8	40.0	
Covered By Medicaid in Last 2 Years									0.56
Yes	14	24.6		10	27.0		4	20.0	
No	43	75.4		27	73.0		16	80.0	
Delayed taking medication due to cost									0.52
Yes	12	20.7		9	23.1		3	15.8	
No	46	79.3		30	76.9		16	84.2	
Household receives food stamps									0.49
Yes	15	25.9		9	23.1		6	31.6	
No	43	74.1		30	76.9		13	68.4	

	Total (n=60) ^b			Intervention (n=40)			Control (n=20)			p
	n	%	n	%	n	%	n	%		
Always had enough money to buy food										0.34
Yes	38	63.3	27	67.5	11	55.0				
No	22	36.7	13	32.5	9	45.0				

^aPercents are based on participants with non-missing data.

^bThere was one protocol violation in which a participant was enrolled and randomized, then found to be ineligible prior to implementation of intervention. This participant was replaced with a new participant. Only the replacement participant is included in the randomization counts and analyses.

^cAge data presented as mean and standard deviation

Nutrition and Physical Activity Outcomes among Participants who Completed Baseline and Follow-Up Assessments^a

Table 3

	Baseline		Follow-up				Change from baseline				Treatment difference, mean (Int - Con)			
			Intervention (n=40)		Control (n=20)		Intervention (n=37)		Control (n=17)		Intervention (n=37)		Control (n=17)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Moderate to vigorous activity, minutes/week	221.3	238.8	192.6	134.9	216.9	169.9	301.6	216.3	7.2	199.5	100.0	186.8	-107.2	(-229.3, 14.9)
Fruit & vegetables, servings/day	3.5	1.7	4.6	1.7	4.4	1.8	4.8	1.3	0.8	1.6	0.09	1.3	0.7	(-0.2, 1.6)
Sugary drinks, ounces/day	24.9	29.3	15.1	17.5	18.0	17.2	15.5	21.5	-6.8	29.4	-0.5	17.1	-6.2	(-21.7, 9.2)
Fast food, number visits in past 7 days	2.8	3.2	2.6	3.8	1.2	1.8	1.4	2.0	-1.5	2.7	-1.3	2.8	-0.2	(-1.8, 1.4)

^aResults based on participants with non-missing data