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Goal Setting: A Strategy for Reducing Health Disparities

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Abstract: The Healthy Rewards study tested the effectiveness of goal setting to encourage behavior change in Latino and African American adults in three northern California counties. Four groups of adults were alternately assigned to receive either 1) basic health promotion and nutrition education without goal setting (control) or 2) the same education with personal goal setting. Participants (n=31) attended four 2-hour weekly sessions over 1 month. While the community-based education was effective in promoting participant behavior change overall, the goal-setting groups reported even greater change than groups who did not engage in goal setting.

Introduction

Over the past decade, the most effective nutrition and physical activity interventions have increasingly been behaviorally focused and theory-driven (Contento, 2008). This approach helps to explain why interventions succeed or fail to improve nutrition behaviors. To advance the field, research is needed on the overall effectiveness of approaches based on theories (e.g., Social Learning Theory), as well as of specific elements of those theories including credible role models, expectancies, and goal setting. Although goal-setting research in workplace settings has been proliferating over the past 35 years, only during the last decade have nutrition educators begun to systematically test its effects in different community health promotion interventions (Locke & Latham, 2002).

Goal setting has been reported to be a successful strategy to change behavior because it directs individual attention and energy towards a goal, encourages persistence, and forces individuals to alter their current status quo to complete the goal (Locke & Latham, 2002). Specific, more difficult goals may result in greater behavior change than "do your best" goals that are too easy. The relationship between a goal and performance appears to be strongest when individuals are committed, which is influenced by the level of importance people attach to their goal and self-efficacy.

Goal setting has shown promise in changing nutrition and physical activity behaviors in adults (Cullen, Baranowski, & Smith, 2001; Shilts, Horowitz, & Townsend, 2004; Heneman, Block-Joy, Zidenberg-Cherr, Donohue, Garcia, Martin, Metz, Smith, West, & Steinberg, 2005). Unfortunately, many behaviorally focused nutrition programs do not use goal setting. Without actually encouraging participants to own a specific goal, programs may be forfeiting unrealized benefits.

Program Description

The University of California Cooperative Extension (UCCE) serves a diverse population who can benefit from nutrition programs that are behaviorally focused and culturally adapted. As type 2 diabetes and other nutrition-related chronic conditions disproportionately affect both African Americans and Latinos (Mead, Cartwright-Smith, Jones, Ramos, Woods, & Siegel, 2008), UCCE designed a culturally sensitive Extension program called Healthy Rewards to 1) decrease risk of diabetes through promotion of a low-fat, high-fiber diet and physical activity and 2) raise community awareness of and support for lifestyle changes that prevent chronic disease.

The Healthy Rewards program focuses on information, tools, and hands-on activities related to behaviors needed to reduce type 2 diabetes risk. The curriculum addresses essential information about diabetes, including risk factors and prevention. Nutrition-related content of the lessons include MyPyramid; label reading; recipe modification and taste testing; sensible portion size; and identification of foods that are low in fat (especially saturated fat) and high in fiber.

Each class session has a cooking demonstration based on the nutrition topic for the class and an exercise activity, such as stretching. To provide a culturally adapted program, all recipes demonstrated in the class have been identified, taste-tested, and approved by people from the respective cultures in other Extension classes (Kaiser, Martin, Lexion, Blackburn, Metz, Smith, Donohue, & Steinberg 2009). Classes are taught in Spanish, and Spanish language, culturally appropriate materials are provided to participants as needed. Teaching occurs in community locations where African Americans and Latinos normally congregate and feel at ease. The curriculum is designed to be taught in four 2-hour class sessions, taught by UCCE staff. The Healthy Rewards program is not intended to replace the larger, more medically oriented diabetes prevention programs, but as a first line attempt to educate the community about type 2 diabetes and behaviors for promoting health.

The main purpose of the pilot study reported here was to determine if adding goal setting to the Healthy Rewards curriculum creates a significant improvement in program outcomes. A second objective of the study was to add to the body of knowledge describing the effects of goal setting in African American and Latino participants of extension based nutrition and lifestyle education programs.

Methods

Participants were recruited from two African Methodist Episcopal churches in Sacramento County, a community health center in Solano County, and two family resource centers in Yolo County. Agency partners identified participants through word-of-mouth and fliers. Thirty-eight adults enrolled in the program, and 31 completed both pre- and post-evaluations. Participants from each recruitment site made up one class group except for the two family resource centers that were combined to make up the fourth class group. Classes were taught and data were collected at community sites where participants felt comfortable and welcomed. The protocol was approved by the University of California at Davis Institutional Review Board. All participants signed consent forms prior to the beginning of the study. The classes included four 2-hour sessions, offered over a month's time.

The four groups were alternatively assigned to receive either the basic Healthy Rewards education without goal setting (control) or the Healthy Rewards with goal setting (treatment). There was one African American group and one Latino group who received non-goal setting (n=16) and one African American group and one Latino group who received the goal setting (n=15). All classes were taught by one experienced bilingual (Spanish/English) educator. A dietitian and dietetic intern assisted in data collection and entry.

At the end of each class, the goal-setting groups selected a goal to complete over the following week (see Figure 1). The participants were able to formulate their own personal goals or choose one from a list that related to that day's lesson. They were encouraged to choose specific, challenging goals and sign a goal commitment form. At the beginning of the next lesson, the educator began with a group discussion related to success and barriers in completing goals. The group members were encouraged to provide support for each other in achieving goals.

Figure 1.
Example of the Goal-Setting Activity

Set a Goal to Improve Your Health!



Create your own goal or choose a goal from below and then fill out the contract. The goal should be accomplished by the next meeting/lesson (1 week).

Create your own goal _____

OR

Choose one of the goals below:

- Stretch for 10 minutes, 3 times next week.
- Choose one meal next week and figure out how many MyPyramid servings you ate. Compare that to how many servings you need in one day.
- Use the plate method to select serving sizes for three meals next week.
- Prepare the recipe presented at today's session during the coming week.
- Use a substitution method described during the recipe presentation on one of your recipes next week. Your recipe _____ Substitution _____
- Have a family member or friend take the "Could you have diabetes and not know it?" quiz.
- Tell a family member or friend how to reduce their risk for diabetes. Who _____

Goal Contract

I _____ will work on the goal I have chosen above for the next week because _____ (benefit of your goal)

Your signature _____ Date _____

Friend or relative's signature _____

The participants completed a participant profile and pre-post questionnaires with items related to health and nutrition practices. The profile and pre-class questionnaire were completed on the first time-point, and the post-class questionnaire was collected within 1 month of the last class. The instrument included items that were previously validated in other low-income, multiethnic audiences and as a whole, demonstrates good internal reliability and sensitivity to change (Townsend, Kaiser, Allen, Block-Joy, & Murphy, 2003; Kaiser et al., 2009). The data were analyzed in SAS Version 9.1 (SAS Institute, Cary, NC). Descriptive statistics were used to examine characteristics of the groups. Baseline differences were examined using t-test or chi-square. The one-way Wilcoxon test was used to examine the difference in the magnitude of change between the goal setting and control groups. Analysis of covariance was used to adjust for baseline

differences in group characteristics.

Results

The participants in the Healthy Rewards program were adults of Latino or African American descent. There were no significant differences in demographic characteristics or medical conditions between those who completed the intervention and those who dropped out (data not shown). There were no significant differences in subject characteristics among the goal setting and control groups (Table 1). The goal-setting group was younger (48.1 + 9.8 yrs) than the control group (60.6 + 10.7 yrs) ($p=0.02$).

Table 1.
Characteristics of Participants in Healthy Rewards

	Control (n=16)	Goal setting (n= 15)	P-Value*
Gender % (n) Female	81 (13)	66 (10)	0.63
Ethnicity/Race % (n)	NA	NA	0.51
African-American	50 (11)	47 (7)	NA
Latino/Hispanic	50 (11)	53 (8)	NA
Country of Birth % (n)	NA	NA	0.63
U.S.A.	53 (8)	67 (10)	NA
Mexico	47 (7)	33 (5)	NA
Education % (n)	NA	NA	0.12
0-2 years of school	14(2)	0	NA
3-6 years of elementary school	29 (4)	13.3 (2)	NA
7-11 years of secondary school (junior high school or high school)	7 (1)	13.3 (2)	NA
High school graduate or GED	14 (2)	20 (3)	NA
College or university graduate	35 (5)	53 (8)	NA
Medical Conditions % (n)	NA	NA	NA
Diabetes	42 (6)	27 (4)	0.14
High blood pressure	57 (8)	36 (5)	0.11
High cholesterol	36 (5)	23 (3)	0.09
Household Information (mean + S.D.)	NA	NA	NA
Number of adults	2.0 ± 1.1	2.0 ± 0.38	0.79
Number of children	0.9 ± 1.2	1.4 ± 1.5	0.10

Monthly Income % (n)	NA	NA	0.97
< \$500	0	7 (1)	NA
\$501 - \$1000	33 (5)	7 (1)	NA
\$1001 - \$1500	13 (2)	0	NA
\$1501 - \$200	0	21 (3)	NA
\$2001 - \$2500	0	7 (1)	NA
\$2501 - \$3000	13 (2)	21 (4)	NA
> \$3001	20 (3)	35 (5)	NA
Declined	20 (3)	0	NA
Language preference % (n)	NA	NA	0.92
English	50 (8)	47 (7)	NA
Spanish	50 (8)	53 (8)	NA
Responsible for family food purchases % (n) Yes	73 (11)	80 (12)	0.43
Responsible for family food preparation % (n) Yes	64 (9)	67 (10)	0.72
* Chi-square for categorical and t-test for continuous variables			

As shown in Table 2, changes in barriers, attitudes, self-efficacy, and behaviors were similar between the two groups for most of the variables. Compared to controls, the goal-setting group reported significantly greater behavioral change in using the Nutrition Facts label more often (p=0.003) and eating out less often (p=0.04). Participants in the goal-setting group also tended to report greater change in eating a variety of vegetables daily, compared to the control group. After adjusting for age, differences in Nutrition Facts label use persisted (Goal setting: pre-test 1.9+ 1.0 and post-test 2.9 + 0.7; Control: pre-test 2.4 + 1.1 and 2.5 + 1.1, p=0.02).

Table 2.
Change in Barriers, Self-Efficacy and Behaviors of Participants Completing the Study (n=31)

Questions	Goal Setting Group (n=15)		Control Group (n=16)		P-Value*
	Pre	Post	Pre	Post	
1) It is difficult to eat more low-fat foods because my family does not like them. 1= agree; 2 = somewhat agree; 3 =	2.8 ± 1.1	2.9 ± 1.2	2.6 ± 1.4	2.7 ± 1.4	0.30

<p>somewhat disagree; 4 = disagree</p>					
<p>2) It is difficult to eat more low-fat foods because I do not like them. 1= agree; 2 = somewhat agree; 3 = somewhat disagree; 4 = disagree</p>	3.1 ± 1.1	3.5 ± 0.9	2.5 ± 1.3	2.8 ± 1.4	0.13
<p>3) Do you change recipes to make them lower in fat and sugar? 1= almost always/usually/always; 2 = often; 3 = sometimes; 4 = no/never</p>	2.6 ± 0.7	2.3 ± 0.7	1.9 ± 1.2	1.9 ± 1.1	0.15
<p>4) How sure are you that you could change recipes to make them lower in fat and sugar and make them acceptable to your family? 1= very unsure; 2 = not very sure/kind of unsure; 3 = kind of sure; 4 = very sure</p>	3.2 ± 0.9	3.6 ± 0.5	3.4 ± 1.1	3.4 ± 1.0	0.13
<p>5) How sure are you that you can use the nutrition facts label found on packaged foods to follow a diet plan? 1= very unsure; 2 = not very sure/kind of unsure; 3 = kind of sure; 4 = very sure</p>	3.1 ± 0.9	3.7 ± 0.6	3.3 ± 0.8	3.5 ± 0.6	0.17
<p>6) Moderate activities include brisk walking, bicycling, vacuuming, gardening or anything else that causes some increase in breathing or heart rate. How often do you do any</p>	2.5 +0.9	2.9 +1.1	2.6 +1.5	2.9 +1.3	0.49

<p>moderate activity for at least 10 minutes? 0=never/almost never; 1=less than once a week; 2=at least once a week; 3=several times a week; 4=daily</p>					
<p>7) Vigorous activities include running, aerobics, heavy yard work or anything else that causes a large increase in breathing or heart rate. How often do you do any vigorous activity for at least 10 minutes? 0=never/almost never; 1=less than once a week; 2=at least once a week; 3=several times a week; 4=daily</p>	1.9 +1.4	2.3+1.4	1.5+1.6	1.4+1.5	0.50
<p>8) Do you limit your food portions to manage your weight? 1=no/rarely/never; 2=sometimes; 3=often; 4=almost always/usually</p>	2.5 + 1.0	2.7 +0.9	2.6 +1.0	2.9+1.0	0.40
<p>9) During the day, do you eat different kinds of fruit? 1= I don't eat fruit; 2=almost never/rarely/never; 3=sometimes; 4=often; 5=almost always/usually/always</p>	3.3 +0.8	3.5 +0.9	4.1 +1.0	4.3 + 0.7	0.44
<p>10) During the day, do you eat different kinds of vegetables? 1= I don't eat vegetables; 2=almost never/rarely/never; 3=sometimes; 4=often; 5=almost always/usually/always</p>	3.3 +0.8	3.9 +0.8	4.3 +1.0	4.4 +0.7	0.08
	3.3+0.9	3.4+1.1	3.7+0.5	3.6+0.5	0.04

11) How many times a week do you usually eat in a restaurant (fast food or buffet)? 1=Daily; 2=several times a week; 3=at least once a week; 4=less than once a week; 5=almost never					
12) When you go food shopping, do you use the Nutrition Facts label? 1=No/never; 2=sometimes; 3=often; 4=almost always/usually/always	1.9 ± 1.0	2.9 ± 0.7	2.4 ± 1.1	2.5 ± 1.1	0.003
13) Which of the following statements describes how you feel about exercise? 1=I am not thinking about getting more exercise; 2=I am thinking about getting more exercise; 3=I have definite plans to get more exercise within the next month; 4=I already do at least 30 min of moderate exercise a day	2.9 ± 0.8	3.3 ± 0.8	2.8 ± 1.2	3.2 ± 0.8	0.50
*Significance level examining pre-post differences between goal-setting and control groups, using the Wilcoxon rank sum two-sample test, one-side p-value					

Discussion

The purpose of the Healthy Rewards program is 1) to decrease risk of diabetes through promotion of a low-fat, high-fiber diet and physical activity in people who are at risk for type 2 diabetes and 2) to raise community awareness of and support for lifestyle changes that prevent chronic disease. The Healthy Rewards program is designed to be multicultural, and in the study reported here, the program was directed towards and tested among African Americans and Latinos. In the pilot study, we examined the effect of incorporating a goal setting activity into the Healthy Rewards curriculum.

The outcomes from the community-based project show adding goal setting activities to nutrition and physical activity educational programs has potential to improve the effectiveness in promoting behavior change. The goal-setting group reported greater change in using the Nutrition Facts label than did the non-goal-setting,

control group. The significant difference in label-reading behavior is not surprising, given the emphasis on this activity in the classes. There was also a significant difference in eating out less often and a near significant difference between the groups for vegetable consumption. While not significant, it is interesting to note a trend towards greater self-efficacy among the goal-setting group compared to controls for using the Nutrition Facts Label to follow a diet plan, helpful for people who are trying to reduce sugar, salt, or fat from their diet.

There were no significant differences between the groups in regards to barriers to eating low-fat foods, self-efficacy for sugar reduction in recipes, exercise and portion size and fruit intake behavior change, or stage of change for exercise behavior. Goal setting may have a differential effect on nutrition behavior outcomes, such that not all behaviors will respond the same to goal setting (Cullen, Zakeri, Pryer, Baranowski, Baranowski, & Watson, 2004). Because the participants determined their own goals, it is also likely they did not choose goals for each behavior or measure.

Nutrition interventions have differing effects (e.g., less effective) based on ethnicity and socio-economic status and therefore warrant the customizing of programs for the intended audience (Oldroyd, Burns, Lucas, Haikerwal, & Waters, 2007). Few published studies compare goal setting with nutrition or physical activity outcomes (Shilts, 2004). Fewer studies specifically address nutrition-related goal-setting behavior outcomes in programs tailored to specific ethnic groups (Pérez-Escamilla, Hromi-Fielder, Vega-López, Bermúdez-Millán, & Segura-Pérez, 2008). The study reported here addresses both gaps in the literature by reporting the outcomes of goal setting in a nutrition and physical activity program tailored toward African Americans and Latinos.

Goal setting is one technique used in a Learner-Centered approach to teaching as well as one aspect of the Social Learning Theory (Perry, Baranowski, & Parcel, 1990; Kaiser, McMurdo, & Joy, 2007). Extension educators have many tasks and challenges when delivering programs to the public and may or may not include successful, yet time-consuming Learner-Centered techniques (e.g., goal-setting, group activities) due to the many challenges they face (Kaiser et al., 2007; Beneveti, Jayaratne, & Jones, 2009). However, if goal setting is added to or included in the curriculum when appropriate and/or made easier for educators to implement, it may prove to improve the outcomes of many extension programs.

The study reported here, while promising, resulted in few significant results and has some limitations. The small sample size of 15 and 16 people per group greatly increased the differences needed to produce significant results. More significant differences may have been realized had the total sample size been larger than 31. Also, the length of the study was likely too short in duration to produce multiple behavior changes and therefore decreased the likely hood of identifying differences in outcomes between groups. Many lifestyle intervention programs are 3 to 6 months in duration.

In conclusion, the results of the pilot study found that adding a goal-setting activity to the Healthy Rewards program did improve participant outcomes. While the significant findings were limited, the study does add to the sparse body of literature describing the research of goal setting in nutrition and physical activity Extension-based programs designed for African Americans and Latinos.

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