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Effects of Counseling on Weight Loss and Exercise Self-Efficacy in Mexican American Women

Sylvia H Crixell, Associate Professor, Texas State University-San Marcos, scrixell@txstate.edu
Eric A Schmidt, Associate Professor, Texas State University-San Marcos, ea17@txstate.edu
Lisa K Lloyd, Associate Professor, Texas State University-San Marcos, ll12@txstate.edu

Abstract

This study assessed whether the addition of supportive group counseling to a culturally-relevant weight loss program improved weight, fitness, and exercise self-efficacy of lower socioeconomic Mexican American women. Volunteers were randomized to an exercise and education (EE), or an exercise, education plus supportive counseling group (EESC). For 8 weeks, all participants were offered five exercise classes and one nutrition class/week, and EESC was also offered one group counseling session/week. Controls were wait-listed (CON). Results suggest that the 8-week weight loss program resulted in weight loss, and that adding supportive group counseling also decreased waist circumference and increased exercise self-efficacy.

Introduction

Mexican American women demonstrate both disproportionately lower levels of regular physical activity (1, 2) and higher rates of obesity than other groups in the US (3). These disparities are alarming since research has shown that obesity and physical inactivity are associated with health-related illnesses, such as type 2 diabetes (4). Thus, increasing physical activity and reducing overweight in Mexican American women have become national priorities (5). However, very few studies have attempted to develop and/or assess the efficacy of culturally relevant weight loss programs for Mexican American women. In general, these studies, which were conducted in the 1990s, involved a series of weekly education classes led by a physician or health educator, and, in some instances, included a limited exercise component, reported modest weight loss (6-9).

The inclusion of a behavioral component, one that targets psychosocial factors, such as exercise self-efficacy, has potential to enhance the effectiveness of weight loss programs (10). A promising behavioral strategy for increasing exercise self-efficacy in Mexican American women may be supportive group counseling. When structured from a Cognitive Behavioral Therapy approach, supportive group counseling can address cognitive (beliefs) and behavioral (activity) aspects inherent to self-efficacy (11, 12). Although no research has reported the use of supportive group counseling to increase exercise self-efficacy for Mexican American women, counseling interventions designed to promote physical activity and, thus, overall health, have shown to be successful with other populations (13, 14). Thus, research addressing the usefulness of including supportive group counseling as part of a comprehensive wellness program for Mexican American women is warranted. The purpose of this study was to investigate whether body weight, other measures of health-related physical fitness, and exercise self-efficacy would be improved in Mexican American women through the inclusion of supportive group counseling within a small-scale, professionally-delivered, culturally-relevant, comprehensive weight loss program. Based on the limited studies regarding weight loss programs for Mexican American women, and on the success of group counseling based on principles of Cognitive Behavioral Therapy with other populations, we hypothesized that the addition of supportive group counseling would improve weight loss, other measures of health-related physical fitness and exercise self-efficacy in Mexican American women participating in a weight loss program.

Methods

Research Setting and Subjects

The data presented herein were collected from a study representing the first of a series of different weight loss interventions in a 3-year research-based wellness program. The program, *¡A Tu Salud!,* was designed to help low-income, overweight Mexican American women in a small city in central Texas achieve a healthier body weight. Every effort was made to ensure that the program was personally and culturally relevant for the participants. For example, the program was offered in a community center in a low-income, predominantly Mexican American neighborhood, many of the data collectors were Mexican American, and all materials and lessons were reviewed by Mexican American women prior to use, and provided in both English and in Spanish. Additional measures to ensure cultural relevance are described throughout this section.

To recruit participants for this intervention, researchers placed posters and flyers at various locations within the city limits, including health care facilities, businesses, churches, and predominantly low-income, Mexican American neighborhoods and housing facilities. All posters/flyers were written in English and Spanish, inviting women to participate in a free, 8-week program designed to help Mexican American female participants achieve a healthier body weight and lifestyle. Advertisements instructed those who were interested to contact program headquarters via telephone, mail and/or in person. The program coordinator at headquarters was Mexican American and bilingual. Based on information provided during this initial contact, participants reporting significant health risks were referred to a local health care facility for medical clearance prior to admission into the program. Significant health risks reported by 7 of the women, who were accepted after clearance by their health care provider, included type 2 diabetes and symptoms of cardiovascular disease. Thirty-three women met criteria for participation, which included self-identification as Mexican American, 18-55 years of age, BMI ≥ 25 $mg \cdot kg^{-2}$ and residence within city limits. Participants were then randomly assigned to an Exercise and Education group (EE, n=10) or an Exercise and Education plus Supportive Group Counseling group (EESC, n=9). Women who were wait-listed for the next intervention served as controls (CON, n=14). Of the initial 33 individuals enrolled in the program, 9 dropped out, citing conflicting family obligations, changes in work/school schedules, or medical conditions, or they simply stopped attending. Results from the 24 remaining subjects in the two experimental groups (EE=7, EESC=6) and the CON group (n=11) were used for data analysis. The mean age of the participants was approximately 34 years. The majority was married, had between 1 and 4 children, and spoke primarily English. Though 50% of the women never attended college, 25% were college graduates. Most participants reported an income at or below 185% of the poverty level, and 75% were employed. Thus, while there were substantial differences in their education level, many characteristics among the women were consistent, including work and family-related responsibilities. Table 1 reports participants' sociodemographic characteristics.

This investigation was approved by the university's Institutional Review Board (IRB). In line with IRB requirements, women who were interested in participating in the program were provided with a consent form that: 1) described the purpose and scope of the program; 2) outlined the expectations should the participant choose to consent; 3) included a list of any potential risks and benefits associated with participation, and; 4) emphasized the voluntary nature of participation, as well as subjects' right to discontinue participation at any time.

Table 1. Sociodemographic Characteristics of Female, Mexican American Participants

	Groups		
Characteristics	CON (n=11)	EE (n = 7)	EESC (n = 6)
Age in years (range)	35.8 (24-52)	32.6 (19-42)	33.5 (25-38)
Marital status			
Married/living as married	8	6	1
Divorced	0	0	2
Separated	1	0	0
Never married	2	1	3
Number of children			
0	2	0	2
1-2	7	2	2
3-4	2	3	2
5-6	0	2	0
Income			
≤ 185% of poverty level	7	4	3
> 185% of poverty level	4	3	3
Education			
Did not complete high school	2	0	0
High school graduate	3	5	2
Some college	4	1	1
College graduate	2	1	3
Work status			
Employed	8	5	5
Not employed	3	2	1
Language usage			
Mostly Spanish	2	0	1
Both Spanish and English equally	0	1	0
Mostly English	9	6	5
Body weight category			
Normal weight (BMI < 25 kg/m^2)	0	0	0
Overweight (BMI ≥ 25 kg/m^2)	2	0	0
Obese (BMI ≥ 30 kg/m^2)	9	7	6

*CON indicates control group; EE, Exercise and Education group; and EESC, Exercise, Education and Supportive Group Counseling.

Testing Procedures

Pre-Testing. Each participant attended a 2-hour baseline assessment during which childcare was provided. Prior to their first visit, participants were given pre-test instructions based on the American College of Sports Medicine guidelines (15) regarding appropriate attire and dietary intake for exercise testing. During the first part of the assessment, participants completed several questionnaires regarding general health status, demographics and psychosocial variables, including exercise self-efficacy. Participants were also instructed on how to complete a 3-day diet record. All materials were written at a sixth-grade reading level and provided in both English and Spanish. To ensure accuracy, Spanish versions were translated from English and then back-translated prior to use. Once participants completed questionnaires and assessments, trained evaluators collected measurements of health related physical fitness. All measurements taken at baseline were repeated at the conclusion of the 8-week intervention.

Exercise Self-Efficacy. Exercise self-efficacy was measured using a 5-item questionnaire assessing participants' confidence in the likelihood that they would exercise under various conditions, such as feeling tired or in a bad mood (16). Test-retest (product moment) reliability for this scale has been calculated at .90 (16). Participants rated their exercise confidence according to a 7-point Likert scale (1 = Not at all confident; 7 = Very confident) on items such as "I am confident I can participate in regular exercise when I am tired" and "I am confident that I can participate in regular exercise when I feel I don't have the time." Participants had the option of selecting "0," which represented "Does not apply to me." All zeros were treated as missing data. A mean score was obtained for each participant, as well as for each group. Higher scores represent greater confidence in the likelihood that one would exercise under various situations (i.e., greater exercise self-efficacy).

Dietary Intake. At pre-testing, participants were instructed individually on how to accurately record daily intake of all foods and beverages for 3 consecutive days (including 2 weekdays and one weekend day). During this 30-minute session, forms were provided to each participant to assist her in logging dietary intake and in correctly estimating portion size. Upon completion and submission of diet records, trained dietetic research assistants contacted all participants individually to review and clarify all diet log entries. Using the Food Processor SQL dietary analysis software (ESHA Research, Salem, OR), average daily intake of calories, sugar, fiber, protein, total fat, saturated fat, essential fatty acids, vitamins C, D, and E, folic acid, calcium, iron and potassium were calculated. Results from this analysis were used to generate a personal diet report for each participant that included specific recommendations based on a comparison of nutrient intake to the Dietary Reference Intakes (17). The dietary changes recommended in the reports were tailored to specifically address the usual diets of the women. For example, women were advised to lower their intakes of total and saturated fat by eating less ground beef, chorizo, flour tortillas, tamales, cheese, lard, cream sauces, pastries and desserts. In this way, for each nutrient, the guidance provided was specific to common foods consumed within the Mexican American culture. Reports were distributed and explained during the nutrition education class held in the third week of the intervention.

Health-Related Physical Fitness. Measurements of health-related physical fitness included resting heart rate, blood pressure, body size and composition, maximal aerobic capacity and muscular fitness. All tests were performed by experienced test administrators who were trained according to American College of Sports Medicine standards (15). After completing all paperwork, participants were instructed to rest comfortably in a chair for at least 5 minutes before health-related physical fitness testing. Resting heart rate and blood pressure were then measured with a Polar Vantage XL telemetric heart rate monitor (Stanford, CT) and a mercury sphygmomanometer (American Diagnostic Corporation, Hauppauge, NY), respectively. Each measurement was performed twice, with each trial separated by at least one minute. The average of the two trials was used for data analysis.

Anthropometric measurements included height and weight (in exercise clothes, without shoes) using a calibrated physician's scale (Health O Meter Professional, Neosho, MO) and waist and hip circumferences, measured with a Gulick tape measure tensioning device (Japan) calibrated to indicate a 4-ounce tension. Anthropometric measurements were taken twice. For body weight and height, if the trials were not within 1% of each other, then another trial was performed. Also, for circumferences, if the

trials were not within 7 mm of each other, then a third trial was performed. For each measurement, the average of the two trials that were within the previously stated parameters was used in data analysis.

Maximal oxygen consumption (VO_2max) was estimated from a YMCA submaximal cycle ergometer test (15). Prior to testing, the seat of the calibrated Monark Cycle 828E ergometer (Vansbro, Sweden) was adjusted so that the participant's knee was flexed at approximately 5 to 10 degrees in the pedal-down position with the toes on the pedals. The YMCA submaximal cycle ergometer protocol (15) was followed, and the test was terminated if heart rate exceeded 85% of the predicted maximal heart rate (i.e., 220 minus age in years). During each stage of the exercise test, the following were measured: 1) 2^{nd} minute heart rate, 2) rate of perceived exertion using the Borg 6-20 point scale (18), 3) blood pressure, and 4) 3^{rd} minute heart rate. A difference of greater than 6 beats·min^{-1} between 2^{nd} and 3^{rd} minute heart rate indicated that steady state was not achieved. In this event, an additional minute was added and a 4^{th} minute heart rate was measured. If steady state was not achieved by the 4^{th} minute, then the test was terminated and the participant repeated the test on a different day. The predicted VO_2max was determined from the slope of the heart rate and VO_2 relationship (15).

Measurements of muscular fitness included: 1) right and left handgrip strength with a Jamar handgrip dynamometer (Sammons Preston, Inc., Bolingbrook, IL); 2) number of modified pushups to fatigue; 3) number of curl-ups, paced by a metronome; and 4) trunk flexion (i.e., sit-and-reach) using an Acuflex 1 sit-and-reach box (Rockton, IL). The best of 3 trials per hand for the handgrip test and the better of 2 trials for the sit-and-reach test were used for data analysis. Results of all health-related physical fitness testing were used to create individualized reports and were provided to participants during the second education class.

Post-Testing. In the week following the eighth week of the intervention, all participants returned to the laboratory for the same assessments administered during pre-testing.

Controls. Women in the control (CON) group completed the same battery of pre- and post-tests separated by the same period of time. Between pre- and post-testing, controls were instructed to maintain their usual level of physical activity and to refrain from beginning an exercise program. Following the 8-week period, controls were invited to participate in the next session of *¡A Tu Salud!*

Intervention

Exercise. For this 8-week intervention, all participants in the EE and EESC groups were encouraged to attend five 60-minute exercise sessions (3 group exercise, 2 walk-fit activities) each week. To lessen potential conflicts with work schedules, 3 group exercise sessions and one walk-fit activity were held weekday evenings, and an additional walk-fit activity was held on Saturday mornings. Group exercise sessions, led by trained Aerobics and Fitness Association of America® certified instructors, involved approximately: 1) 30 minutes of aerobic conditioning (e.g., low impact flow aerobics, step aerobics, and kick-boxing); 2) 20 minutes of resistance training with body bars, resistance bands, and hand weights; and, 3) 10 minutes of cool-down and stretching exercises. The classes were tailored to meet the cultural needs of the participants, which included allowing the women to select Tejano music for use during group exercise classes. Also, as per the requests of the women, the group exercise classes were conducted in a room without mirrors, and no men were allowed in the room during exercise.

Education. A 45-minute education class focusing on improving diet and fitness was conducted one evening each week for the EE and EESC groups on different days. As previously described, personal diet and exercise testing reports were provided to each participant, and served as the basis for instruction during some of the sessions. Lessons focused on topics related to the risks of being overweight (e.g., diabetes and related co-morbidities, with emphasis on the risks for Mexican Americans), the importance of reducing portion size, how to make healthful choices at fast food establishments, choosing whole foods including whole grains, fruits and vegetables, and limiting intake of high calorie foods such as cheese, flour tortillas, desserts, whole milk, and high fat meats. In addition, brief food demonstrations were conducted at the end of each lesson, and samples of healthful foods along with recipes (in English and Spanish) were offered. The classes were designed to be responsive to the expressed needs of the

participating women. For example, during the lesson on the benefits of eating whole grains, the discussion included instructions on how to modify family recipes provided by participants, as well guidance on how to prepare new recipes, such as Spanish-style brown rice. To the extent possible, all recipes used for the food demonstrations were selected, developed and/or modified based, in part, on the use of inexpensive, culturally-specific ingredients. While familiar items were routinely offered, the women were also encouraged to taste unfamiliar dishes. Thus, all education sessions were designed to provide culturally-relevant, personalized instruction on how to consume a healthful, lower calorie diet (≤ 1600 calories/day), as well as ways to practically improve daily physical activity.

Supportive Group Counseling. Immediately following their weekly education class, all EESC subjects attended a 45-minute supportive group counseling session. The sessions were predicated upon Cognitive Behavior Therapy principles (11, 12) and were led by a trained professional counselor who was Mexican American and bilingual. In general, participants were encouraged to discuss concerns revolving around basic cognitive behavioral principles, such as: 1) dietary and exercise goal setting (weekly and overall); 2) addressing perceptions and distorted thoughts about food, body weight and exercise; 3) processing the loss of using food as a coping tool for managing stress; 4) sharing feelings and thoughts related to self-esteem; and 5) the importance of and skills related to developing a social network to support attainment of a healthier body weight (both in and out of group). In accordance with the general practice of counseling, all content emphasized and targeted during the supportive group counseling sessions were generated by the participants needs, beliefs, perceptions and emotions. This allowed for a culturally-sensitive counseling process that incorporated typical thoughts, behaviors and emotions exhibited and experienced by the participants, while also providing alternatives relevant to the needs of Mexican American women.

In the initial supportive group counseling meeting, the women were provided with a goal-setting form and asked to identify individual goals for diet and exercise that were both achievable and measurable. Each participant also developed a behavioral contract that specifically stated her goals and included specific strategies for achieving those goals. For subsequent meetings, the participants were encouraged to keep personal journals documenting their thoughts and feelings regarding themselves, the program, and their progress toward goals. Sessions involved discussions about family and cultural values related to food consumption and daily activity/exercise, as well as common “danger” situations when overeating was more likely. Throughout the series of group meetings, subjects developed specific relapse prevention strategies to help them limit overeating and maximize opportunities for physical activity. At the end of each group counseling session, participants were led through a guided imagery activity during which they were instructed to imagine themselves being healthy and at a lower, yet realistic weight.

For all parts of the program, materials and instructions were given in both Spanish and English, and free childcare was provided. However, during walk-fit sessions, the women were encouraged to include their families during exercise, e.g., pushing small children in strollers and/or having older children walk, skate, or ride their bikes.

Statistical Analysis

To determine whether groups differed at pre-test, a MANOVA was performed on values for health-related physical fitness and a one-way ANOVA was performed on exercise self-efficacy scores. To determine whether groups changed differently from pre- to post-test, a repeated measures ANOVA was performed for each measure. When significant differences in change among groups were observed, Bonferroni/Dunn post-hoc tests were performed on the difference between the pre- and post-test values. To determine differences in change (pre- versus post-test) within each group, paired t-tests were used for post-hoc analysis. An alpha level of .05 was used for all statistical tests.

Results

Chi-square analysis revealed no differences between groups in attrition ($P = 0.539$), exercise class attendance ($P = 0.539$), or education class attendance ($P = 0.103$). Three out of 10, and 3 out of 9 women withdrew from EE and EESC, respectively. Out of 5 exercise classes per week, EE and EESC attended 3.02($\pm$.85) and 2.7($\pm$1.00) classes, respectively. Out of the 8 education classes, EE and EESC attended 4.85($\pm$1.46) and 6.5($\pm$1.87) classes, respectively.

The means and standard deviations for all pre/post-test measures are included in Table 2. There were no group differences in the pre-test values for any health-related physical fitness variable ($P \geq 0.05$). A difference in change among groups from pre- to post-test for body weight ($P = 0.001$) and waist circumference ($P = 0.002$) was observed. As indicated in Table 2, the observed effect sizes (i.e., the proportion of between-groups variance accounted for by the treatment effect plus error) for both body weight and waist circumferences was large (partial $h_p^2 = 0.45$ and 0.44, respectively), indicating a large practical effect (19). Post-hoc tests revealed differences in reduction of waist circumference between EESC and CON ($P = 0.0005$) and in weight loss between: 1) EE and CON ($P = 0.01$); and 2) EESC and CON ($P = 0.0004$). Paired t-tests between pre- and post-test measures revealed: 1) no change in measures of health-related physical fitness for CON ($P \geq 0.05$); 2) a decrease in body weight and body mass index (BMI) for EE ($P < 0.05$); and 3) a decrease in body weight, waist circumference, and waist-to-hip ratio for EESC ($P < 0.05$).

The groups did not differ in exercise self-efficacy at pre-test ($P = 0.096$). A difference among groups in change from pre- to post-test for exercise self-efficacy was observed ($P = 0.001$). As indicated in Table 2, the observed effect size (i.e., the proportion of the between-groups variance accounted for by the treatment effect plus error) for exercise self-efficacy was large (partial $h_p^2 = 0.60$), indicating a large practical effect (19). Post-hoc tests revealed a difference in improvement of exercise self-efficacy between: 1) EESC and EE ($P = 0.036$); and 2) EESC and CON ($P = 0.001$). Paired t-tests between the pre- and post-tests revealed: 1) a decrease in exercise self-efficacy within CON ($P < 0.05$): 2) no change in exercise self-efficacy for EE ($P \geq 0.05$); and 3) an increase in exercise self-efficacy for EESC ($P < 0.05$).

Discussion

The results of this study suggest that supportive group counseling may not be a necessary component of a wellness program for Mexican American women in promoting weight loss, but may be important in enhancing exercise self-efficacy, a potentially important contributor to health promotion (10).

Although modest, the average weekly weight loss (EE= 0.20 kg, EESC=0.31 kg) observed in this study is comparable to that of previous studies conducted over a decade ago (6, 7). For example, in one 8-week study, participants were asked to attend one 90-min “weight reduction/exercise” class each week, which included a combination of nutrition education, behavior modification strategies, and exercise (6). In that study, participants lost an average of 0.33 kg per week. In a similar study of longer duration (24 weeks), researchers compared the effects of family-oriented versus individually-focused weight loss interventions on Mexican American women (7), and reported an average weight loss of 0.14 kg and 0.19 kg per week, respectively.

Our study is unique in that data was collected not only on weight loss, but also on multiple aspects of physical fitness. Participants in EESC experienced significant reductions in waist circumference when compared to CON, but not when compared to EE. Although no other significant differences in change from pre- to post-test scores for other measures of health-related physical fitness were observed among groups, several trends emerged. When compared to CON, EESC experienced greater reductions in resting heart rate, BMI, hip circumference, and waist-to-hip ratio, as well as greater improvements in VO_2max, handgrip strength, and number of pushups. Furthermore, when compared to EE, EESC experienced greater reductions in resting heart rate, waist circumference, hip circumferences, and waist-to-hip ratio, and greater improvements in hand grip strength and number of pushups. Despite a lack of

Table 2. Means of Pre- and Post-Test Changes for Measures of Health-Related Physical Fitness and Exercise Self-Efficacy

	CON (n=11)			EE (n=7)			EESC (n=6)			h_p^2
	Pre	Post	*d*	Pre	Post	*d*	Pre	Post	*d*	
Resting HR (beats·min^{-1})	82.3±11.0	81.5±17.2	-0.057	79.1±7.9	77.6±7.1	-0.20	81.1±9.6	74.0±5.4	-0.95	0.05
Body Weight (kg)	79.9±14.2	80.1±15.0	0.014	88.5±14.6	86.9±15.2**	-0.11	94.4±11.0	91.9±11.0*	-0.23	0.45
Body Mass Index (kg·m^{-2})	32.1±4.3	31.7±4.6	-0.090	35.7±4.8	35.0±4.7	-0.15	37.7±4.8	36.9±4.0	-0.18	0.02
Waist Circumference (cm)	95.2±10.5	95.0±10.8	-0.019	100.8±7.6	98.4±6.5	-0.34	105.0±5.9	100.2±5.0*	-0.88	0.44
Hip Circumference (cm)	114.8±9.6	116.0±8.8	0.130	121.4±13.3	120.1±13.9	-0.10	127.9±7.9	126.0±10.0	-0.21	0.12
Waist-to-Hip Ratio	0.83±.06	0.82±.05	-0.182	0.83±.04	0.82±.05	-0.22	0.82±.06	0.80±.06	-0.33	0.03
VO_2max (ml·kg^{-1}·min^{-1})	21.7±3.2	22.0±4.2	0.052	21.1±1.7	25.6±7.7	0.96	23.8±2.3	27.7±5.4	1.14	0.18
Hand grip (kg)	57.0±13.2	58.4±13.0	0.107	59.3±8.3	58.7±8.6	-0.07	54.5±5.6	57.8±10.6	0.41	0.32
Pushups (No.)	3.0±3.5	3.5±4.9	0.030	3.1±4.8	4.4±6.2	0.24	2.0±4.0	3.5±8.1	0.25	0.03
Sit-and-Reach (cm)	26.4±9.0	26.2±10.2	-0.021	32.0±7.1	31.4±6.2	-0.09	30.1±3.5	26.8±6.3	-0.67	0.28
Exercise Self-Efficacy	4.9±1.6	4.0±0.9	-0.720	4.1±1.7	4.2±1.6	0.06	3.1±1.7	5.2±0.8***	1.68	0.60

[a]CON is control group; EE, Exercise and Education group; EESC, Exercise, Education and Supportive Group Counseling; and HR, heart rate.

[b]A negative % change indicates a decrease from pre- to post-test measures.

[c]*d* = Cohen's Standardized difference. (*d* = (post-test mean - pretest mean)/((post-test standard deviation + pre-test standard deviation)/2)) (19).

[d]h_p^2 indicates partial eta-square, and for a particular effect, is defined as the effect variance plus error.

*A significant difference in change from pre- to post-test for body weight and waist circumference was observed between CON and EESC, $P < 0.05$.

**A significant difference in change from pre- to post-test for body weight was observed between CON and EE, $P < 0.05$.

***A significant difference in change in exercise self-efficacy was observed between EESC and both EE ($P = 0.036$) and CON ($P = 0.001$).

significant findings, these trends are noteworthy given the small sample size and relatively short duration of this study.

The trends towards improvement in measures of health-related physical fitness observed in EESC could be related to an effect that supportive group counseling had on exercise self-efficacy. Specifically, the group of Mexican American women that received supportive group counseling in addition to exercise and education experienced a substantial increase in exercise self-efficacy. The findings of this study are noteworthy, as few studies have manipulated environmental factors in an attempt to increase exercise self-efficacy for a female, Mexican American population. To our knowledge, only one study has investigated the effect of physical activity intervention on exercise self-efficacy in low income, multi-ethnic women (20). In that study, the 8-week "pre-intervention physical activity" curriculum, delivered by health educators, focused primarily on cognitive processes involved in change and overcoming psychological barriers. The researchers observed no change in exercise self-efficacy from pre- to post-test. In our study, supportive group counseling was predicated upon Cognitive Behavioral Therapy principles, led by a trained counselor, and was offered in addition to an intensive exercise and nutrition education intervention. Perhaps the addition of this specific counseling format to a program offering nutrition education and multiple opportunities for exercise contributed to the change in exercise self-efficacy in the Mexican American women.

Two features of this study, i.e., the small sample size and the relatively short duration, may limit the generalizability of the results. Clearly, a larger sample size would increase the statistical power of the analyses. However, this investigation measured the effects of a practical intervention on women living in a community setting. The community building where the intervention was held was the largest available space in the neighborhood, and could not house additional women performing group exercise while simultaneously providing space for childcare. Thus, although the size of each group was small, the intervention was pragmatic, serving to assess whether the weight loss program offered in a community environment was effective, and whether the addition of supportive group counseling in such a practical setting enhanced the effectiveness the program. A period of 8 weeks for the intervention was also chosen for practical purposes. When considered together, the time demanded for the women to participate in enrollment, pre- and post-testing, and the intensive intervention itself was considerable (nearly 3 months). Given that the participants were primarily low income and employed, the researchers were concerned that a more extended intervention would have led to increased attrition, thus resulting in a lower sample size. Clearly, in order to generalize and confirm these findings, future research should involve a larger sample size and investigate interventions of longer duration.

Given the small sample size employed, the results of this study suggest that a multi-disciplinary, culturally-relevant, 8-week program involving exercise, wellness education, and supportive group counseling can increase some measures of health-related physical fitness and exercise self-efficacy in small groups of low-income Mexican American women.

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