

Research Article

Effectiveness of a Single, Low Cost Hispanic Women Prevention Program in Terms of Knowledge Gain

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Abstract

Background

The ideal prevention program is a low cost, single intervention that produces long lasting changes. We surveyed attendees to such program to determine the effectiveness in terms of immediate knowledge gain.

Methods

The program is an annual four-hour Hispanic Women community event. Participants have their blood pressure and glucose checked, are taught lifestyle modifications, and receive a one-hour lecture about cardiovascular risks. Participants received questionnaires before and after the program.

Results

Three-hundred women attended; 185 questionnaires returned (62%). Ninety-three percent identified themselves as Hispanics; 45% spoke Spanish only. Fifty-five percent were between 36-55 years. Scores improved on average 0.9 points between pre and post-conference questionnaires ($p < .0001$) despite 26% individuals scoring worse. Participants with middle school education had the highest gains (average 5.2 points) followed by participants with the lowest pre-conference scores.

Discussion

The study demonstrates that one-time Hispanic Women prevention program is effective in terms of immediate knowledge gain.

Keywords: Resident Physicians; Primary Prevention; Community; Teacher; Cardiovascular Disease

Introduction

Recent healthcare reforms, such as the introduction of accountable care organizations, payments for health outcomes, and patient-centered medical homes, are gradually bringing disease prevention goals to the forefront of our healthcare system [1]. Cardiovascular diseases (CVD) represent a priority among primary prevention programs as it is the main cause of mortality and expenditure in the United States [2,3].

Community preventive programs appear to be effective at reducing the 10-year CVD risk according to systematic reviews of the literature [4,5]. There is a wide range in the degree of risk reduction among the different CVD preventive programs; some of them have marginal effects limiting their feasibility to only high risk communities [4]. Insufficient information exists as to the optimal intervention and duration for community CVD preventive programs; however, one review demonstrated that longer interventions, greater number of interventions, and matching intervention with support appear have a positive correlation [4,5].

The cost associated with multi-year and multi-intervention primary CVD prevention programs is a problem for cash strapped communities, inner-city and rural communities in particular. For these communities, the ideal program is a one-time, low cost intervention that produces immediate and long lasting changes.

We surveyed all attendees to *De Todo Corazón Women's Conference* that took place in Austin, Texas. Our primary goal was to determine the effectiveness in terms of immediate knowledge gain of a one-time, low cost CVD community teaching program for Hispanic Women.

Methods

The American Heart Association (AHA) has various community-based awareness programs throughout the year, such as the *Red Dress* and the *De Todo Corazón ("With all My Heart") Women's Conference* [3,6,7]. *De Todo Corazón* is an annual, four-hour, single event that aims at increasing awareness of CVDs and promotes risk modification among Hispanic women. Participants engage in a series of activities throughout the event. First, attendees had their blood pressure and glucose levels checked during which they also learned about how to measure your own blood pressure at home, the normal blood pressure parameters, and the normal glucose levels. Then, they were taught lifestyle modifications, such as salt intake reduction, decrease consumption of refined sugars, and participation in regular aerobic activities. Participants engaged in the actual demonstration of some aerobic exercises. Volunteer healthcare workers, including pharmacy, nursing and medical students, complete these activities with participants.

The last activity of the event was a one-hour lecture delivered by a first-year internal medicine resident followed by a question and answer session. The lecture was delivered in English with simultaneously Spanish translation by an experienced bilingual healthcare professional. The content of the lecture included an overview of CVDs, risk factors, primary prevention strategies, early recognition of myocardial infarction and stroke for secondary prevention.

Participants received pre- and post-conference questionnaires and handouts about hypertension and stroke from the Center for Diseases and Control at the registration desk, where they were asked to complete the pre-conference questionnaire right away before the beginning of the activities and the post-conference questionnaire at the end of all the activities. The questionnaires had written instructions when and how to complete them. The pre-conference questionnaire asked demographics (*i.e.* age group, gender, marital status, level of education, primary language(s), and race/ethnic group) and ten multiple choice questions about CVDs, primary prevention and early symptom recognition. The post-conference questionnaire asked the same ten multiple choice questions plus four five-point Likert scale questions to rate the talk, presenter, slides, and handouts.

Both questionnaires, including the Spanish versions, had been previously validated using small group presentations. The target language level was 6th grade. The topics of the questions were covered throughout the different activities of the event. The first year resident had previously received training on how to deliver an oral presentation from an experienced educator. Analysis was conducted using descriptive statistics, t-tests, and regression models. The study was exempt from IRB approval under 45 C.F.R.§46.101(b)(2),(3), and (5).

Results

Three hundred women attended the *De Todo Corazón Women's Conference*, of which 185 returned the pre and post conference questionnaires (62% response rate). Table 1 summarizes the demographics of the participants. Ninety-three percent identified themselves as Hispanics and 45% said Spanish was their only language. Fifty-five percent were between the ages of 36-55 and 68% were married or in a domestic partnership.

Figures 1 and 2 present the distributions of the pre and post conference questionnaire scores and of the score change. The pre-conference questionnaire average score was 6.7 ± 2.5 (median: 7; range: 0 to 10) while the post-conference average questionnaire score was 7.7 ± 2 (median: 8; range: 2 to 10). Scores improved on average 0.9 points between the pre and post-conference questionnaires ($p < .0001$) despite 45 individuals (26%) scoring worse on the post-conference questionnaire.

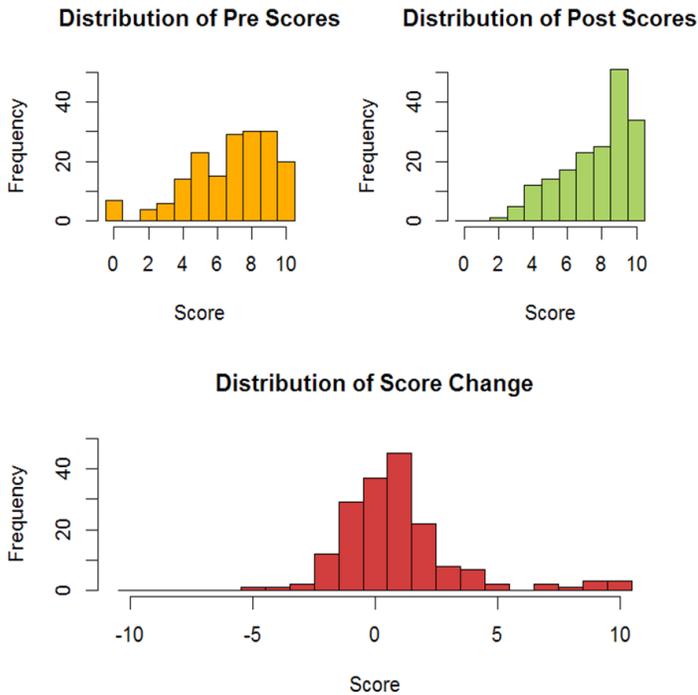


Figure 1. Distributions of pre and post conference questionnaire scores and score change.

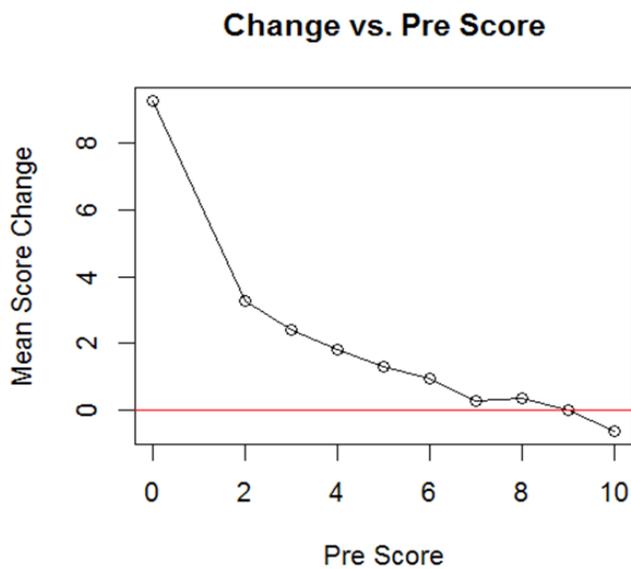


Figure 2. Mean pre and post conference questionnaire score change.

Participants with middle school education had the highest gains in score (on average 5.2 points) ($p>.0001$), all of which were Hispanics, followed by participants with the lowest pre-conference scores (see Figure 3). As to age and race/ethnic group, participants who identified themselves as Afri-

can-American and in the age groups 26 – 35 and 66 – 75 years old also increase the average post-conference scores, although not statistically significant.

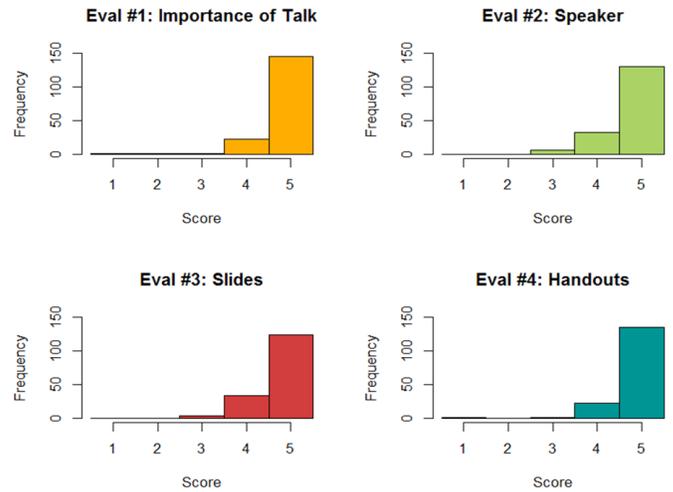


Figure 3. Participants' evaluation of the lecture, speaker, slides, and handouts.

Table 1. Demographics of participants to the *Red Dress* event.

	%
n = 185	
Age	
• 25 years and younger	10%
• 26 – 35 years	21%
• 36 – 45 years	30%
• 46 – 55 years	25%
• 56 – 65 years	10%
• 66 – 75 years	3%
• 76 years and older	0%
• Missing	1%

Ethnicity	
• Caucasian	3%
• African-American	2%
• Asian/Pacific Islander	0%
• Hispanic/Latino	93%
• Native American	0%
• Other	1%
• Missing	2%
Language	
• English	13%
• Spanish	45%
• Both	29%
• Other	13%
• Missing	0%
Marital Status	
• Single, never married	16%
• Married/domestic partnership	68%
• Widowed	3%
• Divorced	9%
• Separated	5%
• Missing	1%
Highest Level of Education	
• Elementary school	6%
• Middle school	3%
• High school	37%
• Technical school	24%
• College	26%
• Master or higher degree	3%
• Missing	1%

The 45 participants who score worse on the post conference questionnaire were whites, married/domestic partnership or widowed and with a high school degree. However, the only variable statistically was those individuals who identified themselves as whites (p 0.05).

Figure 4 presents how participants rated on a 5-point Likert scale the importance of the talk, the presenter, the slides, and the handouts. Due to the lack of data variability, all 5-point Likert scales were summed up to form an overall satisfaction score to find any association with the other variables. African-American participants were significantly less satisfied with the overall presentation even though the gender, race and language concordance with the resident physician delivering the talk (p .0079). Participants aged 56-65 and those with a middle school education or less were somewhat more satisfied (p .03 and .05, respectively).

Discussion

Our study demonstrates that a single four-hour community-based awareness program with multiple small interventions is effective in terms of immediate knowledge gain about CVDs, modification of risk factors, and early symptom recognition. Women with middle school education followed by those with the lowest scores in the pre-conference questionnaire had the most gains. While women in the 56-65 year old group and those with middle school education or less were significantly more satisfied with the presentation, African-American participants were significantly less satisfied.

It is not clear from the study why individuals who identified themselves as white performed worse on the post-conference questionnaire. We speculate that participants might get confused with information provided by the volunteer educators throughout the multiple activities or that the focus of the conference on Hispanic women might have played a role. However, we doubt that bias was introduced somehow by focusing on Hispanic women because we would have expected to see also a drop in the post-conference scores for African-American women who were the group less satisfied with the event.

The next step is to measure the effect that each activity – the blood pressure and glucose screening, the learning about lifestyle modifications and the one-hour lecture with Q&A session – offered during the event had on the participants. Further studies are also necessary to determine whether the knowledge gains are durable and translate in behavioral change that modifies cardiovascular risks. These steps would help discern whether the modest, albeit statistically significant, increase on the average score (0.9) between the pre and the post conference score is clinically relevant.

The results of our study are congruent with Kuo *et al.*'s work at demonstrating that residents can be effective at teaching community members primary prevention goals [8]. An important

question that neither our study nor Kuo et al.'s work answer is whether the immediate knowledge gain is long lasting and translates into behavioral changes, such as periodic blood pressure screening, regular aerobic exercise or reduction of dietary salt intake. The results of our study cannot be extrapolated to men or to presentations delivered to small groups.

The high pre-conference score (average of 6.7 ± 2.5) suggests that participants had a high level of awareness about CVDs, risk modification and early symptom recognition for secondary prevention. This result could be explained by selection bias as participants were selected to attend the event. However, the high level of awareness is comparable to a large statewide *Red Dress* questionnaire conducted by Mozumdar and Liguori, which found high levels of CVD knowledge among Caucasian college educated women in North Dakota [6]. The results of our study and Mozumdar and Liguori's work, however, cannot be directly compared because of the different questionnaires and demographics of the participants.

The fact that African-American women were less satisfied with the overall presentation may appear an unexpected finding given the gender, race and language concordance with the resident physician presenter. However, studies from clinical interactions are inconclusive as to whether gender, race and language concordance improve health disparities for minorities [9,10]. Another explanation for the lower satisfaction among African-American women could be that the focus of the entire conference was to Hispanic women and the use of simultaneous translation.

Funding

None

Conflict of Interest Statement

None of the authors have conflicts of interest

Verification of Author Contribution

All authors had access to the data and substantially contributed to the study. The manuscript has been read and approved by all of the authors and will take public responsibility for its content.

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