

LESSONS LEARNED FROM A BREAST AND CERVICAL CANCER  
PREVENTION PROGRAM FOR MEXICAN WOMEN IN TUCSON, ARIZONA

By

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## **Abstract**

*Meta Salud: Cánceres de la Mujer* is an educational intervention program developed by El Colegio de Sonora and piloted by a team from the College of Public Health at the University of Arizona. Project goals included increasing knowledge of the strategies used to prevent and detect breast and cervical cancer in order to mitigate the prevalence of these cancers among Mexican and Mexican American women. The curriculum focused on improving dietary and exercise habits and improving self-efficacy for cancer prevention and overall health. Over the course of six weeks, six two-hour sessions were held every Sunday in a church on the South Side of Tucson, Arizona. Seven Spanish-speaking women, all Mexican or Mexican-American and varying from ages 18 to 83, were recruited from the church to participate. Baseline and follow-up screenings (weight, glucose, cholesterol, and A1C) and a questionnaire about beliefs and knowledge regarding screening was used to evaluate the program. Positive changes in bio and anthropometric measures and responses to questionnaire indicate that the program was successful in several aspects. Results of this study can be useful in contributing to the literature regarding effectiveness of breast and cervical cancer prevention interventions specifically targeting Mexican and Hispanic communities.

## **Introduction**

Despite abundant evidence for the effectiveness of screening as a method of cervical and breast cancer prevention, access to screening among Latinas in the U.S. remains low. Routine Papanicolaou (Pap) tests and mammograms allow for early detection of cervical and breast cancer, thereby, substantially improving the chance of survival among those women who are diagnosed early and who are believed to have a 91% and 98% chance of survival (American

Cancer Society, 2011). Suboptimal rates of screening are a primary contributor to higher morbidity and mortality rates for cervical cancer among Hispanic women compared to non-Hispanic whites and other minority groups, along with unhealthy diets and low levels of physical activity. Although Hispanic women have lower rates of breast cancer compared to white women, they are more likely to have larger tumors and greater metastasis when diagnosed (Selvin & Brett, 2003). Public health researchers nationwide have designed, implemented, and evaluated interventions that address this disparity. These interventions vary greatly in design, but all have a common goal- to encourage Hispanic women to change behaviors towards screening, diet, and exercise in an effort to prevent women's cancers.

Programs have been implemented throughout the U.S. to increase cancer prevention methods among Hispanic women (Valdovinos et al., 2016). However, interventions have not been implemented in Tucson, Arizona, despite the fact that 42.6% of the population is Hispanic (U.S. Census Bureau QuickFacts: Tucson, Arizona, 2017). In an effort to increase screening and other breast and cervical cancer prevention practices among local Hispanic women, a six-week education- based intervention titled *Meta Salud: Cánceres de la Mujer (MSC)* was piloted in the Tucson community. The objective of this program was two-fold. First, facilitators aimed to present information about what women's cancers are, how to treat them, and how to prevent them. Secondly, the program intended to encourage the participants to make healthy lifestyle changes that would lower their risk of getting breast and cervical cancer. The effectiveness of this intervention was determined by analyzing results from preintervention and postintervention biological measures and response to a questionnaire about beliefs and knowledge regarding screening.

## **Methods**

### *Study Setting*

This study took place between February and April of 2019 in Tucson, Arizona, specifically on the South-side of the city, where the population is largely Hispanic (U.S. Census Bureau QuickFacts: Tucson, Arizona, 2017). The majority of the Hispanic population in this area is Mexican, and thus the term Hispanic is used throughout this paper in reference primarily to populations of Mexican origin. It is important to recognize the distinction between different groups within the Hispanic ethnicity, as it is well researched that the heterogeneous nature of this category suggests that interventions are more effective when designed for specific subgroups, rather than for the Hispanic or Spanish-speaking population as a whole (Morales, Lara, Kington, Valdez, & Escarce, 2002; Flores, Bauchner, Feinstein, & Nguyen, 1999). In response to this, the *Meta Salud: Cancer curriculum* was designed specifically for Mexican women.

The MSC intervention was implemented in a well-known Catholic church on the South side of the city, which offered Spanish masses every Sunday at 1:00 PM and 6:00 PM. The 1:00 PM mass was most popular, with an average of 300 attendees every week. The sessions were carried out directly after mass in the church *salon*, with the intention of making the timing and location as convenient as possible for the participants of the program. The church setting was also meant to provide participants with a safe, familiar space where they felt comfortable and secure, especially considering some of the topics discussed during the sessions could be considered “sensitive.”

In addition to the church setting, the use of the *promotora* was also intended to make participants feel more comfortable while discussing issues related to cancer and health by having someone from their own community assisting in the facilitations of these conversations. The program was facilitated by a *promotora* and a student researcher. Two student volunteers

observed the sessions and took detailed notes to record fidelity and observe participant reactions and comments.

### *Study Procedures*

In order to recruit participants for this eight-week intervention, residents from the community were invited to learn more about the program through informational flyers containing a brief program description, dates, and facilitators contact information (see Figure 1). These flyers were distributed throughout the community, including schools, churches, and among social media networks. Although flyers were distributed widely, this turned out not to be a successful method of recruitment considering all program participants signed up for the program through the church. Rather, all participants were made aware of the program through weekly announcements during the “announcements” period of the 1:00 PM mass. During this announcement, the project facilitator gave a brief description of the program, including dates, cost (free) and that it would be conducted in Spanish and offered to answer any questions after the service. They would stand outside the church post-service and answer questions and sign people up.

Women who signed-up were contacted via phone or email five days prior to the first meeting day. Those who agreed to take part in the evaluation portion of the project were asked to sign an informed consent before participating. The first session was dedicated to collecting baseline bio measures (height, weight, glucose, cholesterol, and A1C) and having the participants complete a baseline questionnaire that included demographic information, health history, breast and cervical cancer screening practices, perceived barriers to screening, fatalism, and misconceptions surrounding cancer screening.

Figure 1: RECRUITMENT FLYER

 THE UNIVERSITY OF ARIZONA  
 Mel & Enid Zuckerman  
 College of Public Health

 **Meta Salud**  
 Cánceres de la Mujer

**ESTÁ USTED INTERESADA EN APRENDER  
 CÓMO PUEDE PREVENIR EL CÁNCER DE  
 MAMA Y EL CÁNCER CERVICOUTERINO?**

**PARTICIPE EN META-SALUD CÁNCERES DE  
 LA MUJER**

UN PROGRAMA GRATUITO DE 6 SEMANAS.  
 CADA DOMINGO EMPEZANDO EL 27 DE ENERO  
 DE 2:15-4:15PM EN LA IGLESIA OUR LADY OF  
 FATIMA.  
 BOCADILLOS PROVEÍDOS.

¿Preguntas?  
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VENGAN A TOMAR UN CAFÉ E  
 INFORMARSE SOBRE QUÉ SE PUEDE  
 HACER PARA PREVENIR A ÚSTED Y  
 A SU FAMILIA

### *Study Sample*

Eight participants enrolled in the eight-week breast and cervical cancer prevention program. All eight participants agreed to participate in the evaluation portion of the project, thus all eight consented, answered baseline questionnaires and completed baseline bio measures. Of the eight participants, seven completed the follow-up questionnaires and bio measures after the intervention, and thus only measures from seven participants were considered for the evaluation portion of the project. All women who participated in the program were born in Mexico, and all but one currently lived in the U.S. (one participant lived in Mexico but traveled to Tucson on the

weekends). Six of the seven participants spoke Spanish as their native language, while all were completely fluent in Spanish and only two spoke English. The ages of the participants were as follows: 23, 45, 48, 53, 55, 59, 83.

#### *Description and Content of Program Curriculum*

Of the eight sessions, the first and last were dedicated fully to collecting bio measures and distributing questionnaires while the other six were two-hour education-based sessions in which several topics related to women's cancer prevention were discussed. The topics covered in these sessions included: the female body and sexuality, what is cancer, breast and cervical cancer prevention, timely detection, treatment, and preventing women's cancers as a shared responsibility. The session timeline typically included a review from the previous session, introduction to the topic of the day, four to five activities, a reflection or final thoughts about the topic of the day, and a physical activity to conclude.

The activities selected for this program involved interactive and participatory teaching methods, and participants were encouraged to discuss and ask questions related to the material throughout the session. Information regarding women's cancers was presented using images and detailed descriptions using a workbook that was provided to each participant. The information presented in this workbook was often read aloud as a group and was then followed by a guided discussion led by the *promotora* and student facilitator. The program curriculum heavily emphasized healthy diet and physical activity as methods of prevention, and thus many activities focused on these topics. Examples of these activities included *El plato de bien comer*, where participants had to draw what they typically ate for breakfast, lunch, and dinner and next to these illustrations draw some healthy alternatives to these meals. Participants were encouraged to

make these changes in meals during the week and report to the group during the following session. Activities such as these were an integral aspect of the MSC project.

### *Data Measures*

Baseline and follow up questionnaires and bio measures were used as evaluation tools for this program. Two different questionnaires were administered, one pertaining to general demographic information and screening practices and another that focused specifically on breast and cervical cancer screening. The first questionnaire had questions about birth country, insurance status, education, income, preferred language, and health history, and was only distributed at baseline. The second questionnaire inquired about perceived barriers to screening, misconceptions about Pap tests and mammograms, and *fatalismo* in relation to cancer, and administered both at baseline and after the program was implemented. Alongside the questionnaires, bio and anthropometric measures were taken in an attempt to track changes in physical health, considering the program curriculum focused heavily on making positive changes in diet and exercise habits as a method for reducing risk for breast and cervical cancer. Height, weight, BMI, waist circumference, blood pressure, glucose, cholesterol, and A1C levels were measured. Screening was administered on the first and last days of the program.

## **Results**

### *Baseline Demographic characteristics*

Seven women between the ages of 23 to 83 completed both questionnaires and bio and anthropometric measured at baseline and postintervention. Table 1 illustrates the results of the demographic characteristics of the participants at baseline. All the women that participated in the program were born in Mexico. Most of the participants reported accessing medical services when they are sick (n=5) and most did not indicate whether they had health insurance (n=5), while two

reported having private health insurance. Six out of the seven participants had completed between grades 6 and 12, and one had some college experience. Four participants reported having a monthly income of less than \$1,000, while three reported receiving between \$1,000-\$3,000. A majority of participants reported speaking Spanish as their preferred language (n=6), and all spoke Spanish fluently.

Table 1: BASELINE DEMOGRAPHIC CHARACTERISTICS OF META SALUD CANCER PARTICIPANTS

Question	Number of Participants (n=7)
Country of Origin	
Mexico	7
Where do you go when you are sick?	
Clinic	5
Other	2
Type of health insurance	
Private	2
Did not answer	5
Education	
6 <sup>th</sup> -9 <sup>th</sup> grade	3
12 <sup>th</sup> grade	3
Some college	1
Monthly Income	
Less than \$1,000	4
Between \$1,000 and \$3,000	3
Dominant language	
Spanish	6
English	1
Have you ever been screened for breast cancer?	
Yes, less than one year ago	1
Yes, between 1 and 2 years	1
Yes, more than 3 years ago	1
No	3
Did not answer	1

Have you ever been screened for cervical cancer?	
Yes, not sure when	3
Yes, more than 3 years	2
No	1
Did not answer	1

*Changes in perceived barriers, knowledge, and beliefs surrounding cancer screening*

A second questionnaire was administered at baseline and follow-up that asked questions focusing on beliefs and basic knowledge of breast and cervical cancer screening (mammograms and Pap tests). Table 2 describes the results. Significant changes were observed in participant responses to the question that stated mammograms were not necessary unless presenting signs and symptoms. At baseline, five participants indicated this as a true statement whereas after the last session only two said this was true. Another important change can be observed in the statement “I feel uncomfortable talking about cancer.” At baseline, four women selected true, whereas when completing the follow-up questionnaire, none of the participants selected true. Participant belief surrounding whether or not mammograms and Pap tests are painful did not change, nor did the fear of something being detected when receiving a mammogram.

Table 2: BASELINE AND FOLLOW-UP CERVICAL CANCER SCREENING QUESTIONNAIRES

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<b>Question</b>	<b>Baseline</b>	<b>Follow-up</b>
Do you think the Pap test is painful?		
Yes	2	2
No	5	5
It is difficult to find time to complete a Pap test.		
Yes	3	2
No	4	5
It is not necessary to get a Pap test if there are no signs or symptoms		
Yes	5	3

No	2	4
I am scared that something will be detected if I get a Pap test		
Yes	6	4
No	1	3
I feel uncomfortable talking about cancer		
Yes	4	0
No	3	7

### *Bio measures*

Several positive changes occurred between baseline and postintervention in biological measurements collected, particularly in weight, glucose, total cholesterol, LDL cholesterol, and triglyceride levels. All seven participants lost weight. Two participants lost less than one pound, while the other five lost between 2.7 and 6.8 pounds. In total, the average weight loss among the seven participants was 3.25 pounds. All participants also lowered their glucose levels, with the exception of one whose levels were unchanged. Decrease in glucose levels for three of the women ranged between 19 and 35 mg/dL, and other decreases were observed in the other two remaining participants (-56 and -61 mg/dL).

Decreases in total cholesterol levels were observed in all but one of the participants. Six participants experienced decreases ranging from 7 mg/dL to 41 mg/dL, with the average decrease in total cholesterol being 21.6 mg/dL. One participant's total cholesterol level went up by 13 mg/dL. The majority of the women in this program experienced lowered levels of LDL cholesterol (n=5), within the range of 3 mg/dL and 65 mg/dL. There were also significant decreases in triglyceride levels, with four of the participants experiencing drops of between 87 mg/dL and 255 mg/dL.

There were no significant changes in blood pressure. Most participants experienced drops in levels of HDL cholesterol (average drop of 4.2 mg/dL). Most hemoglobin A1C levels also

increased, with six participant's A1C levels increasing by an average of 0.45%, and one participant's levels decreasing by 0.3%.

Table 3: COMPARISON OF BASELINE AND POSTINTERVENTION BIO MEASURES

	Participant 1		Participant 2		Participant 3		Participant 4	
<b>Measure</b>	<b>Baseline</b>	<b>Follow-up</b>	<b>Baseline</b>	<b>Follow-up</b>	<b>Baseline</b>	<b>Follow-up</b>	<b>Baseline</b>	<b>Follow-up</b>
Blood Pressure (mmGh)	109/80	115/71	139/79	116/73	105/73	108/67	166/87	149/76
Weight (lb)	175.6	170.6	175.0	172.0	123.6	123.4	180.5	175.9
Glucose (mg/dL)	136	113	141	106	98	98	239	178
Total cholesterol (mg/dL)	244	232	197	164	186	174	167	145
HDL (mg/dL)	44	42	47	37	79	70	36	38
LDL (mg/dL)	161	121	74	98	107	104	57	51
Triglycerides (mg/dL)	350	136	398	143	93	93	370	283
A1C	6.5%	7.2%	5.4%	6.1%	4.7%	4.9%	7.2%	7.5%

  

	Participant 5		Participant 6		Participant 7	
<b>Measure</b>	<b>Baseline</b>	<b>Follow-up</b>	<b>Baseline</b>	<b>Follow-up</b>	<b>Baseline</b>	<b>Follow-up</b>
Blood Pressure (mmGh)	125/88	135/89	102/69	101/76	91/66	90/62
Weight (lb)	171.5	171.0	202.5	199.8	144.2	137.4
Glucose (mg/dL)	114	95	153	97	140	110
Total cholesterol (mg/dL)	199	158	160	173	165	158
HDL (mg/dL)	58	51	44	48	68	60
LDL (mg/dL)	141	76	79	76	42	72
Triglycerides (mg/dL)	102	156	182	245	257	129
A1C	5.8%	6.1%	5.7%	5.4%	4.9%	5.4%

## **Discussion**

### *Analysis and implications of the results*

Changes in the way the participants of the Meta Salud: Cánceres de la Mujer program responded to questions about breast and cervical cancer screening as well as positive changes in several of the biological measurements that were evaluated at baseline and postintervention indicate this program had several effective attributes. Based on the results from the previously mentioned questionnaire, we can observe the program was effective in conveying the importance of screening for breast cancer regularly, rather than only when signs or symptoms are presented. The same cannot be said for Pap tests, which did not indicate the same positive results. This could be attributed to the way the question was worded, which may have confused the reader. Another indicator of the program's success was that none of the participants reported feeling uncomfortable talking about cancer postintervention. This is significant because an essential part of preventing chronic illnesses such as cancer is fostering a willingness to learn and participate in dialogues about the reality of these diseases. This is especially true for Hispanic (particularly Mexican) women, who often because of common cultural values such as *familismo*, *machismo*, and *fatalismo*, do not consider their own health as a main priority (Caballero, 2011).

The results of the baseline and postintervention biological measurements collected also reveal that the program was successful in stressing the importance of healthy diet and exercise as methods for preventing cancer. The overall decreases in weight, glucose, total cholesterol, LDL cholesterol, and triglyceride levels suggest that the participants of the program may have made active changes in lifestyle habits. It is unknown whether or not these changes were made in a direct effort to prevent women's cancers because data was not collected inquiring about this specifically. However, based on conversations that occurred during the sessions, it is probable

that this is the case. When discussing efforts to eat healthier foods and exercise more frequently, participants often expressed a desire to be more aware of and attentive to their individual health, and often referenced the fact that they have the power to prevent diseases such as breast and cervical cancer, and they should do all that they can to do so. These beliefs were repeated and echoed throughout the six sessions of the program by all of the participants.

There were several unintentional factors in this program that may have influenced the results and overall impact on the experiences of the participants. One of these factors was the fact that several mother-daughter pairs participated in the program together. One participant brought along her 23 year-old daughter and another participant brought her sister and 83 year-old mother. It is possible that participating in such a program with a close family member could be encouraging when it comes time to make lifestyle changes such as eating healthier, increasing physical activity, and seeking out regular screenings. Another influential aspect was the intergenerational component of the group of women participating. There were group members from three different generations, which allowed for truly valuable, important, and priceless dialogue and learning that occurred during the sessions. This was especially true when topics such as sexual and reproductive health and rights were discussed. The 83 year-old participant was able to offer insight as to how drastically these issues have advanced by sharing her experiences as a young adolescent, who, pregnant with her first child, was never taught the concept of child labor, and did not know how her baby would be delivered. Furthermore, the women in this group, although they did not know each other before, got along exceptionally well, which allowed for an intimate, comfortable, and safe environment to be established with ease. This feeling of comfort is what permitted participants to share the ideas, aspirations, feelings, and stories (like the one mentioned) that were crucial to the overall success of this program.

### *Study limitations*

There were several important limitations to this program. Firstly, the study did not involve a control group with women from the same community and similar demographic backgrounds that did not attend the MSC sessions. Consequently, the results of the program cannot be directly attributed to the intervention. This is especially true concerning bio measures, which included physical measurements influenced by a plethora of factors. Similar to this issue, it is difficult to determine which features of the program were most successful. It is challenging to assess whether the successes of the program were due to the convenience of the church setting, the small intimate group, the use of a *promotora*, or other possible influential factors. The same way that the small group setting could have possibly made the intervention more effective, it limited the amount of data analysis that could be done with the results of this intervention. If more participants had enrolled, more data would have been collected and statistical tests could be conducted that would convey results that are statistically significant. Additionally, postintervention data was collected very shortly after the completion of the program (one week), so it cannot be determined whether the effects of the Meta Salud: Cánceres de la Mujer project are long-lasting.

### **Conclusion**

Hispanic women suffer more from disparities related to breast and cervical cancer compared to Non-Hispanic whites and women in other racial and ethnic groups (Selvin & Brett, 2003). In order to address this disparity in Tucson, Arizona, a six-week education-based intervention was implemented. Results from this study indicate that this program can be associated with improvements in lifestyle behaviors related to preventing and detecting breast and cervical cancer such as eating healthier foods, increasing physical activity, and having a

better understanding of screening guidelines and dispelling any myths. Given the limitations of this study, further research must be conducted in order to gather additional evidence that can indicate which aspects of education-based *promotora* led interventions like Meta Salud: Cánceres de la Mujer are most effective in eliminating breast and cervical cancer disparities among Mexican women.

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