

Evaluation of Educational Materials from a Social Marketing Campaign to Promote Folic Acid Use Among Hispanic Women: Insight from Cuban and Puerto Rican Ethnic Subgroups

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Abstract Current data indicate significant disparities in awareness and use of folic acid between Hispanic and non-Hispanic women. Hispanic women are less likely to have heard about folic acid, to know that folic acid can prevent birth defects, to take folic acid daily, and to take folic acid before pregnancy. “Three Sisters/Las Tres Hermanos” is a

folic acid social marketing campaign designed for Mexican-American women. To determine the effectiveness of the materials on other Hispanic sub groups, women of childbearing age from Cuba and Puerto Rico were recruited to evaluate the materials. Participants were asked five pre-test questions about folic acid knowledge and were then provided with the folic acid educational materials that included either a photo-novella and a low literacy brochure, or a video-novella in English or Spanish. Once the participants reviewed the materials, they were asked 10 post-test questions about the materials. The results of the evaluation are discussed.

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Background

Folic acid has been shown to reduce the risk of neural tube defects (NTD) when taken periconceptionally [1, 2]. To prevent NTDs such as spina bifida (the failure of the spinal column to close in utero), and anencephaly (the absence of the brain and the cranial vault), the U.S. Public Health Service (USPHS) recommends that all women of childbearing age consume 400 µg of folic acid per day [1]. Efforts to assess the awareness and use of folic acid in all women have been conducted by the Centers for Disease Control and Prevention (CDC) since 1987 through the Pregnancy Risk Assessment Monitoring System (PRAMS) [3]. This ongoing, state- and population-based surveillance system was designed to monitor specific self-reported maternal behaviors and experiences that occur before, during, and after pregnancy among women who deliver a live-born infant [3]. In a study of 11 states with active

surveillance systems, it was found that infants of Hispanic mothers, compared with infants of non-Hispanic white mothers, had a significantly higher birth prevalence of spina bifida and anencephaly 1.19 (CI: 1.03–1.37) and 1.53 (CI: 1.03–1.37), respectively [4].

These data indicate significant disparities in the occurrence of NTDs between Hispanic and non-Hispanic women. Hispanic women are less likely to have heard about folic acid, to know that folic acid can prevent birth defects, to take folic acid daily, and to take folic acid before pregnancy [5–7]. They also have the highest prevalence of NTD affected pregnancies and are less likely to consume food fortified with folic acid [7, 8].

Introduction

In an effort to understand the behavioral determinants of daily folic acid use among Hispanic women in Florida, the University of South Florida (USF) Birth Defects Center, in collaboration with the National Training Collaborative for Social Marketing (NTCSM) at USF began a social marketing campaign in 2002 with a focus on foreign-born and second-generation Mexican women. Social marketing is the application of traditional marketing principles towards the promotion of health behavior change [9]. A central tenet to social marketing is the use of the exchange theory, which states that consumers will adopt behavior change when barriers are reduced and benefits are increased. Social marketers attempt to identify barriers and emphasize the benefits that are appropriate for a population of interest.

As a part of the formative research for the campaign, a series of focus groups were conducted with Mexican and Mexican-American women, to assess their preferences for existing folic acid materials and to gain an understanding of their knowledge, attitudes, and behaviors regarding birth defects and folic acid [10]. Qualitative analysis of coded transcripts revealed key themes, which were incorporated into a multi-media initiative known as “Three Sisters/Las Tres Hermanos” (“Three Sisters”), a series of culturally relevant folic acid education materials that consisted of a photo-novella, a low-literacy brochure, a radio public service announcement and a video-novella. There are many challenges to marketing programs to Hispanic women due to the unique cultural backgrounds of the different Hispanic sub-groups. Three Sisters was developed with foreign-born and second generation Mexican-American women as the population of interest. The materials addressed the barriers and benefits that were identified during initial formative research with this audience.

The products were distributed to health departments and health care providers throughout Florida. The project was conducted in three phases. To learn more about Phase one

and two, the initial planning, formative research, strategy formation, product development, and program implementation phases of the folic acid social marketing campaign see: Quinn et al. [10].

Though Mexican-American women’s risk is slightly higher, all Hispanic women are at an increased risk for NTDs [11]. For this reason it was important to determine if the campaign was effective for multiple Hispanic/Latina subgroups. This evaluation was done in two parts. In Part A of the evaluation, participants who saw “The Story of Three Sisters” video, photo-novella, or brochure were asked to note their present use of vitamins and their future intentions for vitamin use. Part B of the evaluation examined behavior change and asked participants to keep a daily diary and record their use and reasons for non-use of the multi-vitamin. The purpose of this article is to discuss the results of Part A. The purpose of Part A of the evaluation is two-fold: (1) To determine the knowledge and intentions of folic acid use among Puerto Rican and Cuban women in Central Florida and (2) To evaluate the usefulness of the educational materials from the “Story of Three Sisters” social marketing campaign among this same group of women.

Methods

Recruitment

The University of South Florida, Institutional Review Board, approved this study. To evaluate the effectiveness of “Three Sisters” education materials on Hispanic women from Cuban and Puerto Rican subgroups, women of childbearing age (ages 18–39) were recruited through various community venues including health fairs, in two Florida counties, Pinellas County and Hillsborough County. Women were eligible for the project if they were between the ages of 18–39, self-reported as having Cuban or Puerto Rican ethnicity, and could read and speak either Spanish or English fluently.

Recruitment efforts included word of mouth and fliers posted at health fairs, community clinics, churches, and community businesses such as pharmacies and grocery stores. In addition, service providers such as Healthy Start, Head Start, and Early Head Start were told of the project by researchers and supplied with fliers for distribution to potential study participants.

Data Collection

Researchers conducted field interviews with eligible respondents at outreach events, clinics, and churches. Participants also contacted researchers by telephone and signed up for either a scheduled individual interview or a group

interview (two or more participants). Participants signed consent forms and completed demographic forms. All interviews were audio taped and a note taker was present. The women were paid \$25 for completing the interview.

The individual and group interviews were conducted in a semi-structured format in either Spanish or English, depending on the respondents' preferences. Given the semi-structured nature of the interview, participants could ask questions or discuss the materials with the interviewer at any time. However, during the pre- and post-test, participants were told that their questions would be answered upon completion of the tests. The interviews consisted of four parts: (1) a pre-test of folic acid knowledge questions before reviewing "Three Sisters" education materials, (2) review of the educational materials, (3) post-test questions asked after the review of the educational media regarding satisfaction with the materials, and (4) questions on the knowledge of folic acid.

The five pre-test questions about folic acid knowledge were: (1) Do you know what folic acid is? (2) Do you take a multivitamin or folic acid supplement? Why or why not? (3) Are you planning to have a child within the next five years? (4) When should a woman who is thinking about having a baby begin to take vitamins? and (5) Do you believe women of Hispanic origin have an increased risk of having a baby with a birth defect? There was not a question that directly asked the function of folic acid because this information would have been elicited by question one.

The participants were then provided with "Three Sisters" educational materials that included either a photo-novella and a low-literacy brochure, or a video-novella in

English or Spanish. Once the participants reviewed the materials, they were asked 10 post-test questions about the materials (see Table 1).

In addition to post-test questions about the materials, the participants were asked about their knowledge of and intent to use folic acid after being exposed to the campaign materials (See Table 1). The results of the interviews along with examples of the responses to the interviews are described in the results section.

Results

Participant Profile

To evaluate the "Story of Three Sisters" social marketing campaign educational materials, 45 individual interviews and nine group interviews (two to six participants per group) were conducted with 74 women of childbearing age from Cuba and Puerto Rico. Four percent of the participants were from Pinellas County and 96% from Hillsborough County. There were no significant differences between any of the demographic factors for women from Pinellas vs. Hillsborough County. Forty-six percent ($n = 34$) were of Cuban descent and 54% ($n = 40$) were Puerto Rican. Among them, 31% were Cuban natives and 25% were born in Puerto Rico. In addition, 85% of the participants had resided in the United States for more than 5 years, and 43% were bi-lingual in Spanish and English. The average age of the participants was 26 years, however women ranged in age from 18 to 39. Forty-nine percent

Table 1 Questions asked after reviewing materials

1	What do you think is the purpose of the materials (video, photo novella, brochure)?
2	What do you think the material is asking women to do?
3	Who do you think the material is aimed?
4	Do you think you would pay attention to this material?
5	Did the materials make sense?
6	Where would you prefer to watch this video? Or read these materials? Probe for: a TV commercial, in a doctor's office, at the health department, at home
7	Was the material easy to understand? Listen to?
8	Did the material contain language you did not understand?
9	Was the material offensive in any way?
10	What do you think about the length of the material? Too long? Too short?
11	Do you think the materials were designed for any particular type of Hispanic women?
12	Now that you have seen the video (read the materials), has your view about your risk (or Hispanic women?) for having a baby with birth defects changed?
13	Do you plan to start taking a multi-vitamin with folic acid? Why or Why not?
14	When should a woman who is thinking about having a baby begin to take vitamins? (A: All women should take vitamins; B: A year before you want to have a baby; C: A few months before you want to have a baby; D: As soon as you find out you are pregnant)
15	How soon do you want to start a family/have your next child? (A: Within the next 12 months; B: 1–2 years from now; C: 3–4 years from now; D: 5 years from now; E: Not planning on having any or anymore children)

(49%) had never been pregnant, and 53% did not have any children (see Table 2).

Vitamin Consumption

Twenty-one percent (21%) of Cubans and 18% of Puerto Ricans said they did not take a multivitamin or folic acid supplement prior to reading or viewing the materials (See Table 3). These results represent responses to questions asked on the demographic intake form. Six respondents

were not included in this analysis because the questions to assess timing and current versus future vitamin intake were left blank, although the questions were asked again in the subsequent interview script.

After reviewing the materials, among the 21 Cuban participants who said they did not consume vitamins, 19 (91%) said they planned to take a multivitamin while among the 18 Puerto Rican women who did not take vitamins, 15 (83%) said they would begin taking vitamins (See Table 4). Some of the reasons provided by the women ($n = 5$) who did not change their minds about taking vitamins reflect beliefs, attitudes, and behaviors that typically affect women’s decision to consume vitamins [6, 11, 12]. Samples of typical responses are shown below:

Table 2 Characteristics of study population

Sample size	<i>N</i> = 74	(%)
County of residence		
Hillsborough	71	96
Pinellas	3	4
Country of birth		
Cuba	23	31
Puerto Rico	19	25
United States	32	44
Ethnicity		
Cuba	34	46
Puerto Rico	40	54
Language spoken at home		
English	22	30
Spanish	20	27
Bi-lingual (Spanish & English)	32	43
Time living in the United States		
Less than 1 year	4	5
1–5 years	7	10
More than 5 years	63	85
Education		
Less than high school	13	18
High school	12	16
Some college	23	31
College	26	35
Pregnancy history		
No pregnancies	36	49
One pregnancy	11	15
Two pregnancies	16	22
More than two pregnancies	11	15
Currently pregnant		
Pregnant	4	5
Not pregnant	70	95
Number of children		
No children	39	53
One child	12	16
Two children	15	21
More than two children	7	10
Missing	1	0.1

Table 3 Pre-multivitamin intake and country of origin^a

Sample size	<i>N</i> = 68	(%)
Vitamin consumption		
Cuban women		
Take vitamins	12	36
Do not take vitamins	21	64
Puerto Rican women		
Take vitamins	17	49
Do not take vitamins	18	51
Total		
Take vitamins	29	43
Do not take vitamins	39	57

^a These represent responses to questions asked on the demographic intake form. Six respondents were not included in this analysis because the questions to assess timing and current versus future vitamin intake were left blank, although the questions were asked again in the subsequent interview script

Table 4 Post-behavioral intention of vitamin use by country of origin^a

Sample size	<i>N</i> = 68	(%)
Planning to take vitamins		
Cuban women		
Will take vitamins	31	94
Will not take vitamins	2	9
Puerto Rican women		
Will take vitamins	32	91
Will not take vitamins	3	9
Total		
Will take vitamins	63	93
Will not take vitamins	5	14

^a These represent responses to questions asked on the demographic intake form. Six respondents were not included in this analysis because the questions to assess timing and current versus future vitamin intake were left blank, although the questions were asked again in the subsequent interview script

Puerto Rican women:

A big fear of mine is that I will gain weight. I have heard that vitamins make you gain weight... but I'll ask my doctor to recommend one.

I am not having anymore children.

I have to remember to do it.

Cuban women:

I've never taken vitamins before.

I don't have the habit (of taking vitamins). I took them when I was pregnant because I had to.

Pregnancy Intentions

Most of the Cuban respondents (80%) were thinking about having a child in the next five years (5% in 1 year, 11% in 1–2 years, 11% in 3–4 years from now, and 5% within 5 years from now). However, the majority of the Puerto Rican women (62%) were planning on having additional children in the next five years (10% in 1 year, 14% in 1–2 years, 14% in 3–4 years from now, and 24% within 5 years from now). See Table 5. These results represent responses to questions asked on the demographic intake form. Thirty-four respondents were not included in this analysis because the questions to assess timing and current versus future vitamin intake were left blank, although the questions were asked again in the subsequent interview script.

Table 5 Pregnancy intentions^a

Sample size	N = 40 (%)	
Family planning		
Cuban women		
Within the next 12 months	1	5
1–2 years from now	2	11
3–4 years from now	2	11
5 years from now	10	53
Not planning on having any/anymore children	4	21
Puerto Rican women		
Within the next 12 months	2	10
1–2 years from now	3	14
3–4 years from now	3	14
5 years from now	5	24
Not planning on having any/anymore children	8	38

^a These represent responses to questions asked on the demographic intake form. Thirty-four respondents were not included in this analysis because the questions to assess timing and current versus future vitamin intake were left blank, although the questions were asked again in the subsequent interview script

Knowledge

Previous Knowledge of Folic Acid

Prior to reviewing the materials, participants were asked if they knew what folic acid was. Both Cuban and Puerto Rican women recalled folic acid as something beneficial to their health (“important to take”) but did not know what it was or its function. Some women said they knew what folic acid was but did not provide the correct answer. Others were familiar with the term or heard of it before but could not state what folic acid was. Many participants associated folic acid with pregnancy, regardless of whether they had previous pregnancies or not. Some responses included:

I don't remember exactly what it was about...it's good for you and women need to take it.

...helps with pregnancy

...have to take when pregnant

Most women born in Puerto Rico or Cuba said they learned about folic acid in their country of origin. Some women born in Cuba remembered taking folic acid supplements while growing up in Cuba. Other women born in Cuba thought that folic acid was for the development of the baby's bones:

Vitamins for the bones.

Of those who had previous pregnancies, most of the women learned about folic acid during their pregnancies in childbirth classes and physician offices. However, most women still were unable to define folic acid. Others said they learned about folic acid in school, from television commercials and billboards, at health fairs, and from reading health-related magazines.

Family Planning and Vitamin Need

Participants' awareness of when “a woman who is thinking about having a baby should begin to take vitamins” was assessed before and after evaluation of materials. Before reviewing the materials, most of the Cuban women (32%) said, “a year before you want to have a baby” and 26% said “as soon as you find out you are pregnant.” However, 38% of the Puerto Rican women said, “all women should take vitamins” while 24% said, “as soon as you start planning.” After reviewing the materials, 58% ($n = 11$) of the Cuban respondents and 71% ($n = 15$) of the Puerto Rican women said “all women should take vitamins” (see Table 6).

Participants' View of their Risk as Hispanic Women

Before evaluating the materials, participants were asked if they thought women of Hispanic origin had an increased

Table 6 Pre- and post-family planning and vitamin intake: When should a woman thinking about having a baby begin to take vitamins?^a

Sample size	<i>N</i> = 40	(%)
Pre		
Cuban women		
All women should take vitamins	2	11
A year before you want to have baby	6	32
A few months before you want to have baby	3	16
As soon as you find out you are pregnant	5	26
As soon as you start planning (“trying”)	2	11
Missing	1	5
Puerto Rican women		
All women should take vitamins	8	38
A year before you want to have baby	2	10
A few months before you want to have baby	3	14
As soon as you find out you are pregnant	3	14
As soon as you start planning (“trying”)	5	24
Post		
Cuban women		
All women should take vitamins	11	58
A year before you want to have baby	5	26
A few months before you want to have baby	3	16
As soon as you find out you are pregnant	0	0
Puerto Rican women		
All women should take vitamins	15	71
A year before you want to have baby	3	14
A few months before you want to have baby	1	5
As soon as you find out you are pregnant	2	10

^a These represent responses to questions asked on the demographic intake form. Thirty-four respondents were not included in this analysis because the questions to assess timing and current versus future vitamin intake were left blank, although the questions were asked again in the subsequent interview script

risk of having a baby with a birth defect. Seventy-five percent (*n* = 51) of the Cuban and Puerto Rican respondents said they did not think Hispanic women had a higher risk when compared to other women (Cubans, 26%; Puerto Ricans, 25%). See Table 7. The most common responses to these questions were:

I think defects can happen to any race.

All cultures are equal.

Some participants believed that women without an education or resources were more likely to have a baby with a birth defect. A few respondents related the risk to Hispanic women’s poor eating habits while other women thought the risk was specific to a Hispanic’s ethnicity, not “all Latinas.” One comment was:

Table 7 Pre- and post-country of origin and perspective of Hispanic women’s risk^a

Sample size	<i>N</i> = 68	(%)
Pre		
Cuban women		
Risk	7	21
No risk	26	79
Puerto Rican women		
Risk	10	29
No risk	25	71
Post		
Cuban women		
Risk	18	55
No risk	15	45
Puerto Rican women		
Risk	18	51
No risk	17	49

^a These represent responses to questions asked on the demographic intake form. Six respondents were not included in this analysis because the questions to assess timing and current versus future vitamin intake were left blank, although the questions were asked again in the subsequent interview script

I do not believe it. Maybe they are referring to Mexicans because they do not see a doctor. Cubans are different; we have free health and education in Cuba.

After reviewing the materials, the women were asked if their perspective had changed. Among Cuban women, 21% reported that they believed Hispanic women were at an increased risk for having a baby with a birth defect. After reviewing the materials, this percent increased to 55%. Among Puerto Rican women, 29% reported that they believed Hispanic women were at an increased risk for having a baby with a birth defect. After reviewing the materials, this percent increased to 51%.

Many women associated increased risk with place of residence stating that a Hispanic woman living in the United States should not have an increased risk because she has more access to services and information than a woman living in a less developed country in Central and South America.

Now that I am here in Florida I don’t need to worry. In my country we had no knowledge and nobody to get it from.

Other women said that a Hispanic woman’s risk would “depend” on her lifestyle (i.e., eating habits) and place of residence (See Table 7).

If you eat good and live in the US, you don’t have to worry, your baby with have good health.

My grandmother says we should worry more in Florida than when we lived in San Juan, we eat fast food here and we don't grow our own food.

I don't know for sure? I think we have so much more food here than we had when I was growing up (in Cuba). Just knowing that we live in the US and eat more food should mean we don't have a risk. Our family living there – they have risk.

Reaction to Educational Material

Forty-one women reviewed the reading materials (photo-novella, brochure) while 33 women watched the video-novella. Fifty-three percent of the women reviewed the English version of the materials, 46% reviewed the Spanish version, and 1% reviewed both versions of the products. No formal comparisons were made between video and novella users. It was the respondent's choice as to what language the interview was conducted in. Interviewers noted that some women whose English was not proficient asked for the interview to be conducted in English to 'practice'. Sixty-one percent (61%) of the interviews were conducted in English, 32% were in Spanish, and 7% were conducted bi-lingual (Spanish and English).

Interest and Readability

Interest was measured by asking participants if they would "pay attention" to the material. Generally, all of the participants liked the educational material and most of them (73%) said they would "pay attention" to the materials. One participant stated:

I liked it a lot...better than charts and someone talking in front of you.

All of the women understood the message of the materials and said they were easy to follow, to read, and understand:

...did not use doctor's vocabulary.

This is something I wanted to watch.

I felt it was respectful to me and my culture.

This made sense, I could understand the medical part and the importance for our sisters.

In addition, they all agreed that the materials made sense. In fact, one of the scenes that made sense to many of the women was the doctor's scene:

The doctor knows...more than anyone else.

Our family and friends tell us many things but we want to hear what the doctor says.

Utility, Language Use and Cultural Appropriateness of Materials

The majority of the women thought the materials were created for them (targeting all women or all Hispanic women rather than a particular subgroup). Only a few of the women said the materials were aimed at women who want to have a baby ("ready to start a family").

They also said they were familiar with the language used ("basic Spanish", "plain and simple language") and did not find any specific dialects used in the video.

The actors/actresses didn't look like a specific race and they don't have accents.

...can be understood by all women, regardless of ethnicity.

It does not use regional phrases. I am already used to hearing different accents

...no accents...(the materials) can be for any race.

It is designed for 'Spanglish' women.

...typical Hispanic...

However, there were a few Puerto Rican women who said there were references to a particular Hispanic subgroup not because of dialect or word choice but because of the actresses'/actor's tone of voice or accent or the "way they look".

Although an overwhelming number of Cuban and Puerto Rican women said they understood the language used in the materials, after viewing the video, one Puerto Rican respondent found that the language would not be easy for some Hispanics:

The materials are not for immigrants because the language is difficult and hard to understand.

Discussion

Folic Acid Knowledge, Perception of Risk, and Vitamin Intake

Although the majority of the women were educated (some college 31%; college 35%) and have lived in the United States for more than 5 years (85%), they could not provide an appropriate definition of folic acid. Most of the women may have heard about folic acid before but could not define the term or describe its function, and many (57%, $n = 39$) were not taking vitamins. Though the women said they were aware of the importance of folic acid, they still did not take a multivitamin. However, after exposure to the

campaign materials, all of the women seemed to understand the purpose of the materials, were able to clearly state the message and “call to action” of the campaign and 93% ($n = 63$) said they would begin to take vitamins (more Puerto Rican women than Cuban woman). In this study, no significant differences were found between Cuban and Puerto Rican women’s knowledge and perceptions. This may be due to the fact that all groups of women thought the health message was relevant to them.

After reviewing the materials, many women changed their mind about their perception of risk while others continued to believe that they were not at risk because (1) they related risk with food choices and access to health care, (2) thought the risk was equal for women of all races and ethnicities, and (3) thought that risk depended on where a woman lived (US vs. Cuba or Puerto Rico). Although they understood the folic acid message, their perception of risk did not change.

Interest, Cultural Appropriateness, and Behavioral Intentions

Findings suggest that women of Cuban and Puerto Rican descent find the educational materials interesting and appropriate for them. Even though most of the women were not pregnant (95%) or interested in becoming pregnant within the next 5 years (80% Cuban; 62% Puerto Rican), they stated that they would “pay attention” to the materials (73%). Therefore, their decision to pick up the reading materials, pay attention to the video or to begin vitamin consumption was not affected by the motivators of behavior that usually lead women to take vitamins: current pregnancy or future pregnancy intentions [6, 13, 14]. Thus, the authors surmise that the self-reported intention to attend to the materials and begin taking vitamins is an indication of behavior change.

Language Use

There were no major differences between Cuban or Puerto Rican women in their reactions to the language used in the materials.

The majority of the women had lived in the United States for more than 5 years (85%). The diversity of Hispanics in the state of Florida may account for their familiarity with accents and words used by other Hispanic subgroups.

Limitations

There are several limitations to this study. While our intention was to identify a representative sample, we were

ultimately constricted to recruiting women who responded to our flyers and this may have created bias in that only women who were interested in the topic chose to participate. Most of the women were well educated and resided in the US for 5 years or more. The sample size was relatively small and all of the respondents were from Puerto Rico or Cuba. As a result, Hispanics from other ethnic groups were not included in this evaluation. This affects the ability to generalize the results.

Second, the data were not analyzed by level of acculturation, as that was not a consideration during recruitment. However, the majority of respondents reported that they lived in the United States for more than 5 years, which may indicate greater acculturation. In addition, though, 61% of the interviews were conducted in English, 32% were in Spanish, and 7% were conducted bi-lingual, the authors do not feel this is an indication of level of acculturation or socio-demographic marker.

The fact that the majority of respondents could not provide an appropriate definition of folic acid or describe its function, and many were not taking vitamins may suggest that their level of acculturation had no impact on the results. Nonetheless, interpretation of the results should be done with caution. Future studies would benefit from administering an acculturation scale to assess respondents’ level of acculturation and determine to what extent respondents’ acculturation status positively or negatively impact folic acid consumption.

Another limitation of this study is the possible impact of bias. In-group bias may have occurred among respondents who were interviewed in a small group. These respondents may have altered their responses so as to answer in such a way that is more favorably inclined towards the members of the group. However, a greater number of women were interviewed individually ($n = 45$) than as a part of a group ($n = 29$). Similarly, bias may have been introduced when respondents were asked a behavioral intention question immediately after having reviewed the educational materials. Having just reviewed the educational materials and learning about the benefits of folic acid intake, the respondents may have agreed to take a multivitamin out of a perceived obligation rather than a true intent to change their behavior.

Conclusions

Health professionals should not assume that all Hispanics are homogenous in their thought and preference for receiving health information. It is important for health professionals to recognize the historical and socio-cultural differences among Hispanic women from various ethnicities (e.g., Cuba vs. Puerto Rico vs. Mexico) so that health

messages are not misinterpreted or offensive. It has been found that the lumping of subgroups into a single category may lead to the perpetuation of stereotypes [15]. However, in this population of Cuban and Puerto Rican women, dissatisfaction with the educational materials was not found.

The majority of the participants did not take a multivitamin with folic acid at the time of the interview. However, after evaluating the materials, 93% of these women said they would begin to take a multivitamin.

Both Cuban and Puerto Rican groups seemed to understand the educational materials and thought they were clear and straightforward. Therefore, the campaign materials are culturally appropriate for the Cuban and Puerto Rican women in this study though they were created with input from Mexican women. Though many Cuban and Puerto Rican women have been exposed to previous campaigns and educational venues focusing on folic acid, there is still an existing need to reach different ethnic groups of Hispanic women of all educational levels with the type of message offered in the “Three Sisters” campaign materials.

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