

Evaluation of the 2015 Champions for Change Media Campaigns

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Introduction

The California Department of Public Health, Nutrition Education and Obesity Prevention Branch, 2015 Champions for Change media campaigns included television, radio, billboard, and public transit ads. *The Legacy of Health* and *Not My Kids* campaigns were customized for African American and Latina audiences, respectively. The *Join the Movement* campaign was designed for a multicultural audience. All three campaigns were aimed at parents from households with incomes at or below 185% of the Federal Poverty Level, the eligibility requirement for the United States Department of Agriculture (USDA) Supplemental Nutrition Assistance Program (SNAP). *Legacy of Health* was presented in English. *Not My Kids* and *Join the Movement* were presented in English and Spanish. The campaigns ran over a period of 25 weeks, ending on September 30, 2015, in 12 designated markets areas across California.

Methods

The evaluation of the campaigns was designed to assess levels of ad awareness among the target populations and examine correlations between awareness and six outcome variables related to nutrition and physical activity. Low-income African American, Latina, and White mothers were randomly sampled and recruited for two telephone interviews. A total of 1,023 mothers participated in interviews before the start of the campaigns; three to four months later 595 mothers were re-interviewed.

The second interview contained questions to assess awareness of ads from the campaigns through both unaided and aided recall. Unaided ad recall was determined by comparing respondents' open-ended descriptions of ads they had recently seen or heard with a list of the images, messages, and spoken words appearing in the ads.

Results

Over one-third (37.8%) of the sample demonstrated unaided ad recall. Analyses of the unaided and aided recall items found ad awareness was greatest among the target audiences: Latinas and African Americans. A significant increase in the proportion of mothers meeting the recommended level of physical activity a week was found among those with unaided ad recall in analyses that controlled for race/ethnicity, education, WIC usage, and receipt of free or reduced price school meals. Subsequent analyses revealed that the potential impact of ads from the Champions for Change campaigns was most pronounced for Latinas.

Discussion

A significant relationship was found between awareness of ads from the campaigns and self-reported increases in physical activity among Latina, but not African American mothers. The absence of messages pertaining to specific physical activities in the African American-focused *Legacy of Health* versus the Latino-focused *Not My Kids* may explain this finding. Alternatively, discussions of the health consequences of obesity in the *Not My Kids* ads, coupled with the specific risk-reduction activities that parents in the ads stated they had initiated, may have resonated more among Latinas, who reported lower levels of physical activity during the pre-campaign interviews.

INTRODUCTION

The California Department of Public Health (CDPH), Nutrition Education and Obesity Prevention Branch (NEOPB), provides funding, training, and technical assistance to (and works in partnership with) local health departments to promote healthy eating and physical activity through community-wide and face-to-face interventions. These Supplemental Nutrition Assistance Program-Education (SNAP-Ed) interventions are aimed at low-income Californians eligible for the United States Department of Agriculture (USDA) Supplemental Nutrition Assistance Program (SNAP).

In 2015 the NEOPB directed three statewide Champions for Change media campaigns designed to support local interventions by increasing awareness and influencing beliefs and family behaviors relevant to nutrition and physical activity, and to publicize the Champions for Change website as a source for information, tips, and healthful recipes. Each campaign was aimed at a specific racial/ethnic audience: Latino, African American, or multicultural parents. Ads appeared on television, radio, and outdoors (billboards and public transit).

The aims of the evaluation were to assess awareness of ads, overall and from each campaign, and to examine potential outcomes in relation to levels of awareness. Detailed descriptions of the campaigns, the evaluation methods, and results are described in the sections that follow.

THE 2015 CAMPAIGNS

The *Legacy of Health* campaign included messages tailored to African Americans, *Not My Kids* ads were developed for Latinos, and *Join the Movement* ads were designed for multicultural audiences. Below we describe the main messages of each campaign, present the television and radio scripts, and show the outdoor ads that appeared on billboards and public transit.

The *Legacy of Health* Campaign

The focus of the *Legacy of Health* campaign was building legacies and passing down traditions that have always been important to African American families, especially food. Messages in the ads highlighted health consequences of obesity, endorsed existing or new traditions of eating more healthful foods, promoted physical activity, and mentioned the Champions for Change website as a source for tools to help families make new, healthy traditions with resources such as recipes and ideas for keeping family members active.

The television ads depicted African American families in neighborhood settings and cooking meals together, as well as images of children riding bikes with their parents, skipping, and jumping rope.

Television Script #1: New traditions aren't always passed from generation to generation. Sometimes they're passed from neighbor to neighbor, and daughter to mom. And with the right tools and information, we can make sure those traditions last, moving our families away from obesity, high blood pressure and type 2 diabetes and toward more physical activity and better health. Visit us at CaChampionsForChange.net for healthy recipes and tips on how to keep your family active. To help you become a Champion for Change.

Television Script #2: Passing down traditions has always been important. Especially when it comes to the tradition of food. But those traditions of rich foods also come with a legacy of obesity, high blood pressure and type 2 diabetes. At CaChampionsForChange.net there are tools to help change all that. Tools like healthy recipes and tips on how to keep your family active, helping you become a Champion for Change. Visit us at CaChampionsForChange.net for more information.

Radio Script #1: Passing down traditions has always been important to African American families, especially when it comes to the tradition of food. But for too long, many of those traditions of rich foods have also led to a legacy of health problems, which have become too big to ignore. Obesity, high blood pressure, and type 2 diabetes are far too common and represent a legacy in need of serious change. CaChampionsForChange.net has resources to help make that change with tips on healthier eating, ways to keep your family active, and healthy recipes to help you start new, positive traditions for you and your family, both now and for years to come. Visit us at CaChampionsForChange.net to start your new tradition today. That's CaChampionsForChange.net. A message from the California Department of Public Health. Funded by USDA SNAP-Ed, an equal opportunity provider and employer.

Radio Script #2: We all want to leave our kids with something more than what we had, a legacy they can be proud of, giving them the tools they need to be happy and successful. But when it comes to health, what legacy will you leave? Will it be one of obesity, high blood pressure and type 2 diabetes, all of which are far too common within our community? Or will it be a legacy of good eating habits, active living and the knowledge and resources to help ensure a healthier future? CaChampionsForChange.net can help provide those resources with easy access to tips on how to eat better, information on staying active and healthy recipes to help you leave a legacy you can be proud of. Visit us at CaChampionsForChange.net to shape your new legacy today. That's CaChampionsForChange.net. A message from the California Department of Public Health. Funded by USDA SNAP-Ed, an equal opportunity provider and employer.

Legacy of Health Outdoor Ad # 1



Legacy of Health Outdoor Ad # 2



The *Not My Kids* Campaign

Ads for the *Not My Kids* campaign, produced in both English and Spanish, were designed to encourage Latino parents to protect their children from chronic diseases that are associated with childhood obesity, such as type 2 diabetes. They depicted multigenerational families at home, walking and riding bikes, preparing food in kitchens, and shopping for fruits and vegetables.

English-language Television Script: MOM 1: I didn't know... MOM 2: My parents didn't know... MOM 3: That childhood obesity can lead to type 2 diabetes. MOM 4: But now that I know I won't let it happen to my kids. MOM 2: I'm making important changes so my kids can have the chance... MOM 3: to live a long and healthy life. ANNOUNCER: Visit us at CaChampionsForChange.net to get healthy recipes, ideas to keep your family active, and many more tips. Visit CaChampionsForChange.net today. Do it for your kid's health.

Spanish-language Television Script (translated): MOM 1: I didn't know... MOM 2: My parents didn't know... MOM 3: That childhood obesity can lead to type 2 diabetes. MOM 4: Now that I know that I, I won't let it happen to my kids. MOM 1: I'm making important changes so that my kids have the opportunity to live a long and healthy life. ANNOUNCER: Visit us at CampeonesDelCambio.net to get healthy recipes, ideas to keep a healthy family and many more tips. Do it for your kid's health.

English-language Radio Script #1: MOM 1: I didn't know... MOM 2: My parents didn't know... MOM 3: That childhood obesity can lead to type 2 diabetes. MOM 4: I was diagnosed with that disease and my life has changed completely. MOM 2: So the last thing I want is for my kids to go through the same thing. MOM 4: That's why now I cook in a healthier way... MOM 1: And we are more physically active as a family. ANNOUNCER: These moms are protecting their kids from childhood obesity and type 2 diabetes. And you can too. Visit us at CaChampionsForChange.net to get healthy recipes, ideas to keep your family active and many more tips. MOM 2: I just want my kids to have a chance to live a long and healthy life. ANNOUNCER: Visit CaChampionsForChange.net today. Do it for your kid's health. A message from the California Department of Public Health. Funded by USDA SNAP-Ed, an equal opportunity provider and employer.

English-language Radio Script #2: DAD: When I was a kid, I was a little on the chubby side, and my family thought it was so cute. But they didn't know that childhood obesity can lead to type 2 diabetes. Now, my doctor told me I have type 2 diabetes... and there's nothing cute about that. MOM: When my husband told me, I got so worried... for him, and for our kids too. What if the same thing happens to them? DAD: I knew it was time to make some important changes. So, now we go running with the kids, or we play soccer instead of sitting in front of the TV. MOM: And we cook our dishes in a healthier way. ANNOUNCER: These parents are protecting their kids from childhood obesity and type 2 diabetes, and you can too. Visit us at CaChampionsForChange.net to get healthy recipes, ideas to keep your family active and many more tips. Do it for your kid's health. A message from the California Department of Public Health. Funded by USDA SNAP-Ed, an equal opportunity provider and employer.

Spanish-language Radio Script #1 (translated): DAD: As a kid, I was a little on the chubby side. And my family thought it was so cute. But they didn't know that childhood obesity can lead to type 2 diabetes. Now, my doctor told me I have type 2 diabetes... and that's really serious. MOM: When my husband told me, I got really worried... for him, and for our children. What if the same thing happens to them? DAD: Now we go running with the kids, or we play some soccer instead of sitting in front of the TV. MOM: And we cook our dishes in a healthier way. ANNOUNCER: These parents are protecting their kids from childhood obesity and type 2 diabetes. You can do it too. Visit us at CampeonesDelCambio.net to get healthy recipes, ideas to keep your family active and many more tips. Do it for your kid's health. A message from the California Department of Public Health. Funded by USDA SNAP-Ed, an equal opportunity provider and employer.

Spanish-language Radio Script #2 (translated): MOM 1: I didn't know... MOM 2: My parents didn't know... MOM 3: That childhood obesity can lead to type 2 diabetes. MOM 4: I was diagnosed with that disease... MOM 1: And my life has changed completely. MOM 2: The last thing I want is for that to happen to my kids too. MOM 4: That's why now I cook in a healthier way... MOM 1: And we do physical activity as a family. ANNOUNCER: These moms are protecting their children from childhood obesity and type 2 diabetes. You can too. Visit us at CampeonesDelCambio.net to get healthy recipes, ideas to keep your family active, and many more tips. MOM 2: I want my kids to live a long and healthy life. ANNOUNCER: Visit CampeonesDelCambio.net today. Do it for your kid's health. Message from the California Department of Public Health. Funded by USDA SNAP-Ed, an equal opportunity provider and employer.

Not My Kids Outdoor Ad # 1



Not My Kids Outdoor Ad # 2



Spanish

A Mis Hijos No Outdoor Ad # 1



Translation: Walk together for a healthier future

A Mis Hijos No Outdoor Ad # 2



Translation: Teach them to choose healthy foods

The *Legacy of Health* and *Not My Kids* ads contained the same four types of messages. First, they highlighted the consequences of obesity. Second, potential causes of unhealthy eating or physical inactivity were identified (i.e., traditions or lack of knowledge). Third, the ads emphasized that parents could reduce the risk of obesity, particularly for their children, by adopting more healthful eating practices and engaging in physical activity. Finally, the Champions for Change website address was provided as a source for additional information, ideas, and recipes.

The *Join the Movement* Campaign

The *Join the Movement* campaign portrayed obesity as a community concern to be addressed through a community effort. The health consequences of obesity were not explicit in this campaign, compared with *Legacy of Health* and *Not My Kids*. The television and outdoor ads appeared in English and Spanish; there were no *Join the Movement* radio ads. The television ads included a few scenes of adults and children outdoors, engaging in activities such as gardening and active play, but the majority of images were individuals or groups of persons of different races/ethnicities holding signs with statements such as, “We’re fighting childhood obesity,” “We’re all in this together,” and “Join the movement.” The following outdoor ads provide examples of these types of scenes and messages appearing in the television ads.

English-language Television Script: More and more families like yours are making healthy changes in their lives every day. And all these changes are helping us fight childhood obesity in California. But we still have more work to do. We are all in this together. To keep our kids healthy, join the movement. Visit us at CaChampionsForChange.net.

Spanish-language Television Script (translated): More and more families like yours are making healthy changes in their lives every day. And all these changes are helping us fight childhood obesity in California. But we still have more work to do. We are all in this together. To keep our kids healthy, join the movement. Visit us at CampeonesDelCambio.net.

Join the Movement Outdoor Ad # 1



Join the Movement Outdoor Ad # 2



Spanish

Join the Movement Outdoor Ad # 3



Translation: Help fight against childhood to obesity in our community. Unite in the movement!

Join the Movement Outdoor Ad # 4



Translation: We unite in the movement to make healthy changes. Unite in the movement!

Timeline and Placement

The campaigns occurred over a 25-week period, from April 6 through September 30, 2015, in 12 designated market areas (DMAs), geographic regions in which residents receive similar local radio and television broadcasts. Runyon Saltzman Einhorn (RSE) produced the 2015 campaigns and facilitated placement of the ads. Ad placement was focused on reaching at least 50% of individuals with incomes equal to or less than 185% of the Federal Poverty Level (FPL), the eligibility criterion for SNAP. Ads varied by language (English or Spanish) and by type of media (Table 1). The timing of ad placement also varied such that members of the target population received presentation of the ads for only a portion of the 25 weeks in some DMAs.

Table 1. Campaign ad placement by designated market area (DMA) and language

DMA	TELEVISION	RADIO	BILLBOARD	TRANSIT
Bakersfield	English/Spanish	Spanish	English/Spanish	English/Spanish
Chico	English	Spanish	English	-
Eureka	English	-	-	-
Fresno	English/Spanish	Spanish	English/Spanish	English/Spanish
Imperial County	-	Spanish	Spanish	-
Los Angeles	English/Spanish	English/Spanish	English/Spanish	English/Spanish
Monterey	Spanish	Spanish	-	Spanish
Palm Springs	Spanish	Spanish	Spanish	-
Sacramento	English/Spanish	English/Spanish	English/Spanish	English/Spanish
San Diego	Spanish	English/Spanish	English/Spanish	English/Spanish
San Francisco	-	English	English	-
Santa Barbara	English	Spanish	-	-

RSE report that during the 25 weeks that the campaigns ran, a total of 23,744 30-second ads ran on television. Thirty- and 60-second radio ads aired 20,610 times. At least 1,109 billboard ads (425 large and 684 small) and 1,358 transit ads appeared in low-income neighborhoods. The counts of billboards and transit ads represent conservative estimates of unduplicated ad placement and likely underestimate the true number of ads displayed in low-income neighborhoods.

THE EVALUATION

The evaluation was designed to answer three research topics:

- #1: The extent of awareness of ads from the campaigns, overall and by race/ethnicity.**
- #2: The extent of ad awareness by type of campaign and race/ethnicity.**
- #3: The relationships between levels of awareness of ads from the campaigns and self-reported changes in dietary behaviors and physical activity overall and by race/ethnicity.**

Data to address these topics came from telephone interviews with adult females with children, from randomly selected SNAP households, within the four largest DMAs that had the greatest concentration of television, radio, and outdoor ads: Fresno, Los Angeles, Sacramento, and San Diego areas.

Sampling and Screening

SNAP households with at least one adult female and one or more child(ren) were identified from the sampling frame: the Medi-Cal Eligibility Data System (MEDS database). Initial calls to the selected households included screening questions to identify a mother or female guardian, 18 to 54 years old, of one or more children 18 years or younger. Racial/ethnic information in the MEDS database and screening questions were used to attempt to obtain equal proportions of interviews from Latina, African American, and White mothers so that sufficient sample sizes would be available to conduct analyses from subsamples of mothers from each racial/ethnic group.

Mothers were identified and recruited for interviews by telephone before the launch of the ads from the three campaigns (Wave I interviews), and again three to four months later. Follow-up (Wave II) interviews assessed mothers' awareness of ads from the campaigns through unaided and aided recall items. Interviews were conducted in English or Spanish and participants were offered a \$10 gift card in appreciation of their time. The study procedures were reviewed and approved by the State of California Committee for the Protection of Human Subjects.

Assessing Ad Awareness Through Unaided Recall

A series of open-ended questions during the Wave II interviews were used to assess awareness. The first item was, "I would like to ask you some questions about ads you may have seen or heard. Have you noticed any ads – on TV, on the radio, outside on billboards or online – recommending that people eat fruit and vegetables for better health? I don't mean ads for specific restaurants or grocery stores."

Those responding "yes" to this question were asked to describe the ad they saw. Interviewers were trained to use the following probes, when applicable, to elicit detailed responses.

- What was the main message of the ad?
- Where did you see or hear it?
- What do you remember about the story?
- What do you remember about the characters?

The same series of questions was presented to mothers again for those indicating that they saw “any other ads like this in the last three months.”

Subsequently, two research staff independently compared mothers’ responses to these questions with verbal (key words, phrases) and visual elements from all ads from all three campaigns. Specified procedures were used to code recall of ads from the campaigns into one of five categories. Mothers who did not recall any ads were coded as “Did Not Recall.” The categories and criteria used by the coders appear in Table 2.

Table 2. Codes and related criteria for coding unaided recall responses

UNAIDED RECALL	CRITERION
1. Definitely	Provided very accurate details of ad: either one of 31 campaign-specific key words (e.g., “Champions for Change,” “Department of Public Health”) or a pairing of one character-related detail (from a list of 46 items) with one word or phrase, image, or contextual detail (from a list of more than 100 items) (e.g., “father and two daughters playing soccer” paired with “healthier”)
2. Likely	Provided at least one accurate detail of a word, phrase, character, setting, or other specific detail present in ads, but did not provide either a specific keyword or a pairing of two details sufficient to categorize the response as “Definitely saw or heard” (e.g., “ <i>Mother showing a full salad bowl with her family in the background around the dinner table,</i> ” <i>or</i> “ <i>I won’t let it happen to my kids</i> ”)
3. Possibly	Provided vague or nonspecific descriptions of words or phrases and/or characters or settings/activities similar to ads (e.g., “a group of adults playing sports,” “grocery store with fruits,” “eat healthy”) without sufficient detail to conclude that the description did not refer to another, similar campaign
4. Probably Not	Provided details or description of non-campaign ads (e.g., “ <i>Thrive,</i> ” “ <i>Let’s Move,</i> ”)
5. Did Not Recall	Responses such as “ <i>Do not recall</i> ” or “ <i>Don’t remember</i> ”

Final codes for each ad were identified at meetings of the coding staff and the study Principal Investigator. In cases where there was disagreement between coders, the Principal Investigator facilitated discussions, resulting in final codes through consensus.

Each mother was then assigned a final code for potential ad recall. For those providing details on two ads, the final code was based on her highest level of recall. For example, if a mother was coded as “Likely” saw for one ad and “Possibly” for the second ad, the final code for her was “Likely.”

Levels of recall were subsequently coded into a dichotomous variable: Unaided Ad Recall versus No Ad Recall. Those mothers whose final code indicated that they definitely or likely saw ads were coded as Unaided Recall. Mothers whose final code was Possibly, Probably Not, or Did Not Recall were coded as No Ad Recall.

The proportion of those coded as Unaided Ad Recall were compared with a measure of advertising impact called gross rating points (GRPs), which represents the percent of the target population reached multiplied by exposure frequency. It should follow that the proportion of mothers with Unaided Ad Recall across the selected four geographic areas would match the GRPs for each area. As seen in Table 3, survey participants from Los Angeles had the highest level of Unaided Ad Recall and GRPs; San Diego had the lowest proportion of mothers with Unaided Ad Recall and GRPs. Fresno and Sacramento both had similar levels of Unaided Ad Recall and GRPs.

Table 3. Proportion of mothers coded as Unaided Ad Recall and gross rating points by designated market area (DMA)

DMA	UNAIDED AD RECALL	GROSS RATING POINTS
Los Angeles	40.3%	12,173
Fresno	36.8%	9,719
Sacramento	38.0%	9,016
San Diego	20.9%	3,972

This correspondence between Unaided Ad Recall and GRPs demonstrates a level of (concurrent) validity to assessment of ad awareness and coding procedures.

Assessing Ad Awareness Through Aided Recall

Following the series of unaided recall items, Wave II survey participants were presented with 12 narratives of actual television, radio, and billboard ads that they “may have heard or seen recently.” After each description, mothers were asked, “Do you remember hearing (seeing) this ad?”

Aided Ad Recall of one or more of the campaigns was determined by responses of “yes” to any of the items describing a *Legacy of Health* (n = 5), *Not My Kids* (n = 5) or *Join the Movement* (n = 2) ad.

Unaided Versus Aided Ad Recall

Our unaided recall procedures likely underestimate actual ad awareness since they required survey respondents to have sufficient exposure to recollect specific details of one or more ads. Furthermore, receiving a code of Unaided Ad Recall necessitated the ability to quickly recall and articulate those details during the interview process. However, the aided recall questions overestimate actual ad awareness since they are subject to social desirability and misattribution biases.

The primary advantage of the aided recall measures is that they provide an estimate (although inflated) of awareness to a specific campaign, while the unaided recall method only allows for estimating levels of awareness to any ad included in the three campaigns. As seen in the forthcoming Analyses section of this report, both unaided and aided recall estimates are used to address the three research topics. Beforehand, we review the six outcome variables used to address the third research topic.

Outcome Variables

Six outcome variables were derived from the same questions appearing on both the Wave I and Wave II survey instruments.

Three of the six variables were from questions designed to assess changes in mothers' support and encouragement of children's healthy eating and physical activity. These questions were:

- How often do you make it easy for (your/any of your) child(ren) living in your home to eat fruit and vegetables, such as by having them washed, cut and ready to eat? Would you say not at all, less than every month, every month, every week, or every day?
- How often do you make it easy for (your/any of your) child(ren) living in your home to be physically active, such as by taking them to sports practice, playing ball with them, or encouraging them to play outside or ride a bike? Would you say not at all, less than every month, every month, every week, or every day?
- How often do you or your children do a physical activity together, such as playing ball, riding bikes, or taking a walk? Would you say not at all, less than every month, every month, every week, or every day?

The fourth outcome variable estimated daily intake of fruits and vegetables. This variable was created from the sum of five items asking about the number of times mothers drank 100% fruit juice; ate fresh, frozen, canned, or dried fruit; ate green salad; ate carrots; and ate other vegetables. Responses to each question were recorded within time frames of day, week, month, or year, as offered by each mother.

Mothers' healthful eating behavior was also assessed according to whether they met the USDA's recommendation that fruits and vegetables fill at least half of one's plate at mealtimes. Specifically, mothers were asked, "When you think about your plate at mealtimes, how much of your plate is usually filled with fruit and vegetables? Would you say none, one fourth, one half, three fourths, or all?"

A series of physical activity questions began with, “In a usual week are there any days when you are physically active for at least 10 minutes at a time? Think of your free time only, not work time or work around the house.” Those who responded “yes” to this question were asked the number of days per week they were physically active and how much time per day (hours or minutes) they spent on physical activities. Minutes of weekly physical activity were calculated from these questions and dichotomized to represent meeting the USDA’s recommended level of at least 150 minutes of moderate physical activity per week for adults 18 to 64 years.

ANALYSES

The analyses conducted to address the three research topics were based on responses from mothers participating in both Wave I and II interviews.

The extent of awareness of ads from the campaigns, overall and by race/ethnicity.

The proportion of mothers with Unaided Ad Recall was calculated. A Chi square test was used to compare awareness by race/ethnicity. The intent of this analysis was to see whether Latina and African American mothers were more likely to demonstrate awareness of ads aimed at the targeted racial/ethnic groups.

A series of Chi-square tests was also used to compare mothers with Unaided Ad Recall versus No Recall by education level, use of WIC within the last year, and whether respondents’ children received free or reduced price school meals.

The extent of ad awareness by type of campaign and race/ethnicity.

Exposure to at least one ad from each of the three campaigns was examined by race/ethnicity using the aided recall items.

The relationships between levels of awareness of ads from the campaigns and self-reported changes in dietary behaviors and physical activity overall and by race/ethnicity.

McNemar tests were conducted to assess change for each outcome among mothers in the Unaided Ad Recall group. For outcomes where Wave II versus Wave I scores significantly increased, linear mixed model analyses were conducted with level of awareness as the primary predictor and the following dichotomized variables as controls:

- Latina versus other racial/ethnic groups
- African American versus other racial/ethnic groups
- Level of education (up to high school graduate versus some college or college graduate)
- “Yes” versus “no”/“don’t know” responses to the question, “(Does your child) / (Do any of your school-age children) receive free or reduced price school meals?”
- “Yes” versus “no”/“don’t know” responses to the question, “Have you used the WIC program in the last 12 months?”

Potential changes in outcomes from awareness of an ad from the campaigns were tested in these models as the interaction between Unaided Ad Recall versus No Ad Recall and time (Wave I versus Wave II). These analyses were then replicated with data from Latina, African American, and White mothers separately.

The criterion for statistical significance was set at $P \leq 0.10$. As discussed below, 200 fewer mothers were re-interviewed than delineated in the study protocol. This shortfall substantially reduced the statistical power of the analyses; increasing the chance of a Type II error if more conservative (e.g., 0.05) levels were selected.

RESULTS

A total of 1,023 mothers participated in Wave I interviews from March 2 to April 4, 2015 (Response Rate = 16.8%). Wave II interviews occurred from July 1 to August 4, 2015. During the period of time between the end of Wave I and start of Wave II interviews, two letters were sent to mothers reminding them about the Wave II interviews, and asking that they notify the survey vendor in cases where their phone number had changed. The second letter included a \$5 bill and a note of thanks for continued participation in the study. Despite these efforts, only 595 mothers were re-interviewed, for a 58.2% retention rate, well below the target of 80%.

Of the 595 mothers participating in both Wave I and II interviews, 36.0% were Latina, 32.4% were White, and 29.9% were African American (Table 4). Schooling less than high school was reported by 12.4% of the sample, 30.3% were high school graduates, 41.7% had attended college, and 14.6% had graduated from college. In the 12 months prior to the Wave I interviews, 42.7% of mothers had used WIC services. Almost three-fourths (74.1%) of the sample had school-aged children who received free or reduced price meals at school. Overall, 88.1% of mothers had income levels that met the eligibility requirements for assistance through the USDA's WIC and/or Child Nutrition programs.

A total of 225 mothers, or 37.8% of the sample, demonstrated Unaided Ad Recall. Awareness of an ad from the campaigns significantly differed by race/ethnicity, with a greater percentage of Latina mothers (43.5%) demonstrating Unaided Ad Recall than African American (37.6%) and White (31.6%) mothers.

Table 4. Demographic characteristics of mothers participating in Wave I and Wave II interviews, overall and by level of awareness

	AD AWARENESS			P
	All Mothers Participating in Wave I and II Interviews (n = 595)	No Ad Recall (n = 370)	Unaided Ad Recall (n = 225)	
<u>Race/Ethnicity</u>				0.05
Latina	36.0%	56.5%	43.5%	
White	32.4%	68.4%	31.6%	
African American	29.9%	62.4%	37.6%	
Other	1.7%			
<u>Highest education</u>				0.54
Less than High School	12.4%	56.8%	43.2%	
High School Graduate	30.3%	65.6%	34.4%	
Some College	41.7%	60.9%	39.1%	
College Graduate	14.6%	64.4%	35.6%	
<u>Used WIC last 12 months</u>				0.94
Yes	42.7%	61.8%	38.2%	
No	53.7%	62.5%	37.5%	
<u>Child(ren) received free or reduced price school meals</u>				0.47
Yes	74.1%	61.2%	38.8%	
No	25.9%	64.9%	35.1%	

Table 4 also shows that no differences were found for levels of awareness for education or participating in a USDA program (WIC or school meals) to assist low-income mothers. The findings for education are of particular importance because they suggest that less educated mothers were just as likely to be exposed to and recall specific details of ads, per our unaided survey items and coding procedures, as mothers with higher levels of education.

The data in Table 5 show that a higher proportion of African Americans demonstrated Aided Ad Recall for *Legacy of Health* ads and a greater proportion of Latinas were aware of at least one *Not My Kids* ad. Moreover, more than half of Latina and African American mothers were aware of a multicultural *Join the Movement* ad, compared with one-third of White mothers.

Table 5. Awareness of types of ads assessed through aided questions by race/ethnicity of mothers participating in Wave I and Wave II interviews

Type of Campaign Ads	Latina	African American	White	P
<i>Legacy of Health</i>	43.5%	64.6%	47.7%	<0.01
<i>Not My Kids</i>	80.8%	77.0%	59.1%	<0.01
<i>Join the Movement</i>	53.7%	53.9%	33.2%	<0.01

The findings in Tables 4 and 5 suggest that the campaigns were effective in reaching low-income mothers from minority populations, and that through strategic ad production (e.g., selected ad appeals and ethnicity of persons appearing in the ads) and placement, those ads designed for specific racial/ethnic groups did in fact reach the intended audiences.

Table 6 displays the pre (Wave I) and three- to four-month post (Wave II) changes for the six selected outcomes among mothers with Unaided Ad Recall. Ad awareness was related to increases in the proportion of mothers who reported making it easy for their children to be physically active and those who stated that they were active with their children. Furthermore, the proportion of mothers engaging in the recommended 150 minutes of activity per week increased by 7.0 percentage points.

Table 6. Changes in outcomes between Wave I and Wave II interviews among mother coded with Unaided Ad Recall

	UNAIDED AD RECALL (n = 225)			
	Wave I	Wave II	Change	P
Make it easy for child(ren) to eat fruit and vegetables every day	75.7%	76.4%	+0.7	0.66
Make it easy for child(ren) to be physically active every day	66.4%	73.7%	+7.3	0.04
Are physically active with child(ren) every day	30.5%	39.6%	+9.1	<0.01
Average times eat fruit or vegetables per day	4.3%	4.3%	0	0.87
At mealtime at least half plate filled with fruit or vegetables	39.7%	41.8%	+2.1	0.63
Meet recommended level of physical activity of per week	47.5%	54.5%	+7.0	0.06

The findings in Table 7 determine whether changes among mothers with Unaided Ad Recall exceed those for mothers coded as No Ad Recall, while discounting the effects of race/ethnicity, education, recent history of WIC services, and receipt of free or reduced price meals at children’s schools. As seen in this table, the increases in the proportion of Unaided Ad Recall mothers who met the per-week physical activity recommendation remained significant.

Table 7. Levels of ad awareness and outcomes, controlling for race/ethnicity, levels of education, participation in WIC during the last 12 months, and child(ren) receiving free or reduced price school meals

	NO AD RECALL			UNAIDED AD RECALL			P
	Wave I	Wave II	Change	Wave I	Wave II	Change	
Make it easy for child(ren) to be physically active every day	67.8%	68.8%	+1.0	61.2%	68.5%	+7.3	0.22
Are physically active with child(ren) every day	33.6%	37.8%	+4.2	31.2%	40.4%	+9.2	0.40
Meets recommended level of physical activity of per week	57.5%	53.5%	-4.0	51.0%	58.2%	+7.2	0.07

These analyses were replicated for Latina, White, and African American mothers separately. Findings for the items related to making physical activity easy for, or being physically active with children were not significant when examined separately for the three racial/ethnic groups. Table 8 shows that the main effect for meeting the physical activity recommendation was due to increases among Latinas (12.0 percentage points).

Table 8. Analyses of levels of ad awareness and outcomes by racial/ethnic groups, controlling for race/ethnicity, levels of education, participation in WIC during the last 12 months, and child(ren) receiving free or reduced price school meals

	NO AD RECALL			UNAIDED AD RECALL			P
	Wave I	Wave II	Change	Wave I	Wave II	Change	
<u>Make it easy for child(ren) to be physically active every day</u>							
Latina	68.5%	67.7%	-0.8	60.3%	71.1%	+10.8	0.21
White	82.9%	88.9%	+6.0	82.5%	84.2%	+1.7	0.58
African American	72.0%	68.1%	-3.9	62.4%	70.7%	+8.3	0.22
<u>Are physically active with child(ren) every day</u>							
Latina	38.0%	40.4%	+2.4	39.7%	47.2%	+7.5	0.58
White	48.1%	54.5%	+6.4	43.8%	54.4%	+11.5	0.69
African American	30.6%	33.5%	+2.9	24.1%	32.7%	+8.6	0.56
<u>Meets recommended level of physical activity of per week</u>							
Latina	61.1%	51.6%	-9.5	45.9%	57.9%	+12.0	0.04
White	66.3%	61.7%	-4.6	61.5%	73.1%	+11.6	0.14
African American	54.2%	57.8%	+3.6	56.8%	53.3%	-3.5	0.56

DISCUSSION

Three NEOPB campaigns were implemented over a 25-week period in 2015 to support local health departments in their efforts to increase healthful eating and physical activity among parents and children from low-income California households. The campaigns targeted African American, Latina, and multicultural audiences, and included airing 44,354 television and radio ads and placement of at least 2,467 billboards and public transit ads.

The design of the evaluation of the three campaigns led to interviewing 595 mothers from randomly selected SNAP households at two points in time, before the ads began and then three to four months later.

During the second interview, mothers were asked to provide details about any ads they may have seen or heard that recommended people eat fruit and vegetables. Mothers' open-ended responses were compared with visual and verbal elements of the ads from all three campaigns. Through this unaided recall process, we found that over one-third (37.8%) of mothers were aware of one or more ads. Moreover, the ads successfully reached the racial/ethnic target audiences, with 43.5% of African Americans and 37.6% of Latinas, versus 31.6% of Whites demonstrating unaided ad recall.

The validity of our unaided ad recall methodology was corroborated by comparing the proportion of mothers with ad awareness with levels of advertising impact across the four selected DMAs. The overall level of ad impact, or GRP, was reported by RSE as 8,332. The research literature suggests that this level of impact is sufficient to change health behaviors over a three-month period. For example, a significant increase in physical activity – the proportion of seniors walking 30 minutes five times a week – was found for a campaign with 5,104 television and 3,461 radio GRPs¹.

Similarly, we found that awareness of ads from the campaigns was related to a change in the proportion of mothers meeting the USDA's recommended level of physical activity. In consideration of the potential practical significance of this finding, if a 7% increase were observed in all 12 DMAs where the 2015 campaigns were presented, we would expect an increase of more than 430,000 SNAP-eligible California mothers meeting the physical activity recommendation in July 2015, during the campaigns, compared to March 2015, before the campaigns started.

Subsequent analyses revealed significant and substantial increases in physical activity among Latina mothers, but not African American mothers exposed to the ads of the campaigns. Before the start of campaign ads, 46% of Latinas met the USDA's recommendation of 150 minutes of physical activity a week; follow-up interviews with the same mothers found that 58% met this criterion.

¹ Reger-Nash B, Bauman A, Booth-Butterfield S, Cooper L, Smith H, Chey T, Simon KJ. Wheeling Walks: Evaluation of a media-based community intervention. *Family and Community Health* 2005; 28:64-78.

Converting these proportional measures of per week physical activity into minutes per day allows for evaluating the potential effectiveness of the campaigns in light of tangible health outcomes. The overall increase of 13.2 minutes a day reported by Latinas approaches the 15-minute increment of physical activity demonstrated to reduce all-cause mortality by 4% and all-cancer mortality by 1% among men and women².

There are a few reasons why the ads from the campaigns may have been more effective among Latinas than African Americans. First, the African American-focused ads did not emphasize physical activity to the extent that those ads targeting Latinos did. That is, the *Legacy of Health* ads only made mention of physical activity in general terms in reference to visiting the Champions for Change website for “tips to keep your family active” and “information on staying active.” In contrast, the *Not My Kids* ads had parents discussing specific active behaviors such as “running with the kids or play soccer instead of sitting in front of the TV,” explicitly in response to “(reducing) the risk of childhood diabetes and type 2 diabetes.”

While we found through our aided recall items that similar proportions of Latinas and African Americans had been exposed to a *Not My Kids* ad, the physical activity messages may have been more salient to Latinas. Overall, a smaller proportion of Latinas met the recommended level for physical activity according to our pre-campaigns Wave I survey: 55.7% compared with 59.1% for African Americans and 61.1% for Whites. Furthermore, a much smaller proportion of Latinas coded with Unaided Ad Recall met this criterion initially than Latinas with No Ad Recall (45.9% versus 61.1%). As such, levels of exposure to *Not My Kids* ads may have been similar across Latinas, but brought greater awareness and impact among those most in need of physical activity.

Changes in our two dietary outcome variables – times per day eating fruit and vegetables and reported frequency of meals with half fruit and vegetables – were not related to awareness. In a thorough review of studies investigating media campaigns and behavior change, Wakefield et al. note that campaigns designed to increase healthful eating behaviors and levels of physical activity can be effective, but those intended to impact nutrition choice should promote specific healthful food choices³. Without those types of messages, the ads appearing in the three campaigns appeared to not influence fruit and vegetable consumption to levels detectable through our evaluation design.

The strengths of our evaluation include using unaided recall procedures to examine ad awareness in relation to the outcome variables and assessing changes over time in the selected outcomes among the same mothers.

² Wen CP, Wai JPM, Tsai MK, Yang YC, Cheng TYD, Lee M-C, Chan HT, Tsao CK, Tsai SP, Wu X. Minimum amount of physical activity for reduced mortality and extended life expectancy: a prospective cohort study, *The Lancet* 2011; 378: 1244-1253.

³ Wakefield MA, Loken B, Hornik RC. Use of mass media campaigns to change health behavior. *The Lancet* 2010; 376: 1261–1271.

Our evaluation and thus the findings presented in this report are subject to many limitations. First, changes over a three- to four-month period do not necessarily equate to longer term increases in physical activity. Second, our samples of mothers were selected from those geographic areas that had the greatest concentration of ads, which increased the chance of detecting differences over time, and our results cannot be taken to mean that the campaign ads had the same impact in the remaining eight DMAs. Third, the generalizability of our findings is further hampered by the fact that only 17% of those eligible to participate in the evaluation were interviewed before the start of the campaigns, and only 58% of those mothers who initially participated were re-interviewed three to four months later. Finally, the survey vendor did not systematically record information on visits to the Champions for Change website. Thus we do not know to what extent the ads were effective in prompting mothers to take advantage of the sites.

In conclusion, significant relationships were observed between awareness of ads from the campaigns and levels of physical activity among Latina mothers. The 2016 campaign, titled “Be Better” will place greater emphasis on physical activity than the 2015 campaign. The ads will be designed to promote small, attainable behavior changes, which can lead to long-term health benefits. They will include messages such as “I played in the park,” “I shot hoops after school,” and “I walked to school today.” Thus, we can anticipate similar findings for our 2016 evaluation, which should include higher levels of physical activity among members of the target population regardless of race or ethnicity.

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