Avoiding a Knowledge Gap in a Multiethnic Statewide Social Marketing Campaign: Is Cultural Tailoring Sufficient?

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In 2007, the State of Hawaii, Healthy Hawaii Initiative conducted a statewide social-marketing campaign promoting increased physical activity and nutrition. The campaign included substantial formative research to develop messages tailored for Hawaii’s multiethnic Asian and Pacific Islander populations. The authors conducted a statewide random digital dialing telephone survey to assess the campaign’s comparative reach among individuals with different ethnicities and different levels of education and income. This analysis suggests that the intervention was successful in reaching its target ethnic audiences. However, a knowledge gap related to the campaign appeared among individuals with incomes less than 130% of the poverty level and those with less than a high school education. These results varied significantly by message and the communication channel used. Recall of supermarket-based messages was significantly higher among individuals below 130% of the poverty level and those between 18 and 35 years of age, 2 groups that showed consistently lower recall of messages in other channels. Results suggest that cultural tailoring for ethnic audiences, although important, is insufficient for reaching low-income populations, and that broad-based social marketing campaigns should consider addressing socioeconomic status–related channel preferences in formative research and campaign design.

Poor nutrition and physical inactivity are the second two leading causes of preventable morbidity and mortality, and are among the top priorities of Healthy People 2010 (U.S. Department of Health and Human Services, 2000). Over the past 15 years, the prevalence rates of overweight and obesity have increased rapidly across the United States (Mokdad et al., 2003). To have a public health effect, interventions must not only be effective in changing individual behavior, but they must also have significant reach into the population (Dzewaltowski, Estabrooks, & Glasgow, 2004). Social marketing campaigns have tremendous promise for reaching large segments of the population. Communitywide physical activity campaigns with a large-scale visible marketing component are recommended by the Guide to Community

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Preventive Services (U.S. Department of Health and Human Services, U.S. Preventive Services Task Force, 2006). Although mass media campaigns have excellent potential to generate change, it is essential that these campaigns reach the most at-risk segments of the population and do not further exacerbate health disparities.

Social marketing campaigns treat behavior change as a consumer product that is purchased through the costs incurred in adopting a new behavior pattern, and encourage behavior change through market-oriented communications, including promotional activities and targeted product placements (Fox & Kotler, 1980; Herie & Martin, 2002; Kotler & Zaltman, 1971; Rothschild, 1979). As with product marketing, the design of these persuasive communications requires careful audience segmentation and tailoring of messages to each population segment (Huhman et al., 2008).

Significant challenges to the effective marketing of health behaviors have been identified over the years (Bloom & Novelli, 1981; Fox & Kotler, 1980). A particular challenge for health promotion campaigns is that their target audiences are often those individuals who are the hardest to reach, have the most barriers to behavior changes, and are the most likely to be resistant to the messages (Marcus, Owen, Forsyth, Cavill, & Fridinger, 1998).

Numerous studies have shown that information disseminated broadly through mass media tends to disproportionally reach higher socioeconomic segments of the population, creating a knowledge gap between higher status, more-educated individuals and low-income populations (Ettema, Brown, & Luepker, 1983; Tichenor, Donohue, & Olien, 1970). Thus, the heavy reliance on mass media communications in social marketing can raise social justice concerns. Media-related knowledge gaps have been documented between income and education levels, and between racial and ethnic groups, suggesting that health-related media campaigns can lead to increased health inequity and larger health disparities between populations (Guttman, Kegler, & McLeroy, 1996).

This gap may be further exacerbated by the growing digital divide—the differential access to information resources of the Internet on the basis of socioeconomic status (Roberts & Foehr, 2008). This may change as access to online data becomes more widespread among lower income groups and health communication campaigns become more sophisticated in the use of social media. The explosion of cell phone–based social networking appears to be a promising new channel, especially for narrowcasting to younger individuals and ethnic minorities (Della, Eroglu, Bernhardt, Edgerton, & Nall, 2008). The number of individuals reporting the use of a cell phone to access e-mail or Internet data increased 79% in the past year, and, according to the Pew Research Institute, African Americans appear to be adopting these technologies at a faster rate than the population as a whole (Horrigan, 2009).

Avoiding a knowledge gap in a health-related campaign requires the judicious consideration of many issues in campaign design (Finnigan & Viswanath, 2008). Careful audience segmentation and formative research are critical (Marcus et al., 1998; Rothschild, 1979). Channel selection and product placement may also affect the campaign’s reach with specific segments of the target audience.

In the past, telephone- and Internet-based campaign activities have been less effective in reaching low-income ethnic minority populations (Marcus et al., 1998). Print media have been shown to disproportionally reach older, more affluent, more educated individuals. Television advertising, by contrast, may be more effective at reaching individuals with lower levels of education. Early research suggests social media and other computer-oriented campaign activities appear to disproportionately
reach younger individuals and those with higher socioeconomic status levels (Viswanath & Finnigan, 1996). Although recent research has suggested that narrow-casting with social media can reach lower socioeconomic status and ethnic minority audiences, this is still predominantly among younger individuals, and the selection of the specific channel is critical.

Media campaigns to promote healthy living to a broad audience can be ineffective in reaching ethnic minorities. Some campaigns fail to account for differences in culture, resources, and media access between different ethnic populations (Snyder, 2007; Wolf, Lepore, Vandergrift, Basch, & Yaroch, 2009). Campaigns that do not take into account the specific language, diet, beliefs and cultural preferences of ethnic populations may contribute to a knowledge gap among these groups (Fitzgibbon et al., 2007; Niederdeppe, Kuang, Crock, & Skelton, 2008; Powell, Kreuter, Stephens, Marti, & Heinemann, 1991; Yancey, Ory, & Davis, 2006). This may be a particular problem for Asian and Pacific Islander populations, whose cultural and linguistic diversity is not often reflected in mass media campaigns (Frisbie, Cho, & Hummer, 2001).

In 2007, the Hawaii State Department of Health’s Healthy Hawaii Initiative launched a statewide social marketing campaign intended to promote nutrition and physical activity among Hawaii’s multiethnic populations. The Start.Living. Healthy. campaign followed classic media-based social marketing techniques, using carefully targeted messages distributed through a wide range of media sources and outlets, supported by promotional activities in schools, grocery stores and other community locations (Maddock, Silbanuz, & Reger-Nash, 2008).

The Start.Living. Healthy. campaign was specifically designed to be culturally salient for Hawaii’s complex, multiethnic Asian and Pacific Islander population. The Healthy Hawaii Initiative conducted extensive formative work before launching the campaign that explored surface and deep structure constructs (Resnicow, Braithwaite, Ahluwalia, & Baranowski, 1999) related to diet and exercise behavior in the target populations (Maddock et al., 2008). The formative research included both blue-collar and white-collar workers, but it did not explore channel or message preferences that might differ for individuals at or below the poverty level. This study hypothesized that although the cultural tailoring would result in improved reach among Hawaii’s ethnic minorities, cultural tailoring alone would not be sufficient to prevent the development of a knowledge gap between low-income Hawaii residents and Hawaii residents with incomes above the poverty level.

Methods

Design of the Media Campaign

The Start.Living. Healthy. campaign consisted of two related media campaigns conducted from April–September of 2007: Step It Up, Hawaii! and Fruits and Veggies, Good Choice! These campaigns consisted of interlinked television and radio commercials, mall posters, and other collateral media materials placed in supermarkets and other public venues, reinforced with community events and news coverage in the local media. Both campaigns used extensive formative research to ensure that messages had a local feel, were designed to appeal to Hawaii’s multiethnic communities, and were targeted toward adults ages 35 to 55 years (Maddock et al., 2008). A standard media mix was used for placement of the advertisements, with some boosting in ethnic-specific channels but no specific channel selection on the basis of income or
socioeconomic status. Step It Up, Hawaii! took place across 10 weeks from April to June 2007, and Fruits and Veggies, Good Choice! followed during 10 weeks from July to September 2007.

For each campaign, three conceptually linked 30-s television commercials were created to promote the desired behavior (walking 30 min per day, or eating one more fruit and one more vegetable per day). The walking and the fruits-and-vegetable campaign materials were steeped in local cultural cues, and each ad modeled decisions to take a concrete, simple action that could improve health. The television ads, posters, and other collateral materials for the Step it Up, Hawaii! and Fruits and Veggies, Good Choice! Campaigns have been incorporated into the Healthy Hawaii Initiative Web site (www.healthyhawaii.com).

The television commercials were aired on all major network television stations in Hawaii, two Asian-language television stations during Korean soap operas (popular with many ethnic groups in Hawaii), and on Olelo, a public access channel on Oahu that provides Native Hawaiian cultural programming. For the campaign, $100,000 was spent on television advertising, $50,000 was spent on radio advertising, and we received earned media valued at $51,000. Paid print advertising was placed in the community’s major newspaper, the Honolulu Advertiser, as well as two special-purpose print publications. All television and radio stations offered at least one free public service announcement for every one paid ad purchased.

The first ad introduced the core behavioral message. The second and third ads were booster messages with specific tips and techniques for adopting the new behavior. Each of the ads modeled performing the behavior in a different place. For the fruit-and-vegetable campaign, the places identified for increasing fruit/vegetable intake were shopping at the supermarket, ordering a salad with your meal at from a lunchwagon, and providing vegetable dishes at a family barbecue. For the walking campaign, the advertisements showed individuals walking with family in their neighborhood, taking the stairs at work, and going for a walk in a public park after work.

During the first 6 weeks of each campaign, the ads were introduced in sequence, with each ad given a 2-week run. During Weeks 7 through 10, all three messages were aired equally. The radio ads were audio version of the TV ads and followed a similar airing schedule. They were aired statewide on all major radio stations, and reinforced through on-air trivia contests.

A variety of public relations activities were developed to support the campaigns, including a weekly newspaper column in the Honolulu Advertiser, media coverage of a school-based walking program, television and radio coverage of campaign activities, and the integration of the fruit-and-vegetable campaign into health fairs and other community events. Special programs were developed to reach families through youth-focused events, including sponsorship of an Olelo Youth Video contest, a Honolulu Theater for Youth play, and a Step It Up At School walking campaign at King Kaumuai'i Elementary School. Campaign posters were placed in malls, bus stops, doctors’ offices, and other public locations in target communities. A public–private partnership was also created with Foodland, one of the state’s largest supermarkets, that generated advertising valued at $63,000. The Foodland partnership involved five special events at Foodland stores, with island-grown farmers’ markets promoting fruit and vegetable purchases, live radio feeds from the events, extensive use of in-store and print advertising of the events, and shopping-bag stuffers.
The campaign was also supported by a Healthy Hawaii Initiative Web site providing additional campaign materials. The Web site recorded 6,833 unique visits during the time of the campaign, with most activity focused on the pages providing heart-healthy fruit-and-vegetable recipes.

**Design of the Evaluation**

Data for this study were collected as part of an ongoing statewide surveillance survey for physical activity and nutrition (Maddock, Marshall, Nigg, & Barnett, 2003). We used a stratified, random digit dialing system to reach a random sample of 3,600 of Hawaii’s noninstitutionalized adult population on all major inhabited islands of Hawaii: 1,800 on the island of Oahu, 600 from Hawaii, 600 from Kauai, 500 from Maui, 75 from Molokai, and 25 from Lanai. The disproportionate design was randomized across counties, and it included listed and unlisted telephone numbers. The sample size was selected to give statewide precision estimates of ±2%.

For this analysis, we used only results from the 2007 cross-sectional survey, which was conducted immediately following the conclusion of the campaign and included variables that provided data on the potential knowledge gap.

Participants were asked a series of demographic questions, including gender, age, ethnicity, highest education level attained, income level, marital status, language spoken at home, and perceived general personal health. Awareness of the campaign and its messages was assessed by asking the participants whether they recalled seeing or hearing each of the specific messages included in the campaign in the past 6 months, followed by a question asking whether they recalled seeing or hearing anything about the Start.Living.Healthy. campaign. Participants’ who recalled the Start.Living.Healthy. campaign were then asked to rate their attitudes about the campaign’s overall messages using a series of 5-point Likert scales.

**Analysis Methods**

For the analyses, respondents were grouped into educational and age categories that reflected the audience segmentation used in the design of the media campaign.

Household income was used in conjunction with household size to determine the household’s 2006 Hawaii-adjusted federal poverty level (FPL). Respondents were then grouped on the basis of whether their household income was at or below 130% of the FPL, between 130 and 180%, or above 180%.

In Hawaii, ethnicity is a complex variable. There are a wide range of ethnicities in the state, and approximately 20% of the population is of mixed ethnic heritage (according to the 2000 U.S. Census). In this survey, respondents were asked to specify their identity from a list of 16 ethnic groups, including “mixed” and “other,” and each individual was allowed to indicate up to seven separate ethnicities. In analyses, these data were consolidated into seven ethnic categories: Caucasian, Hawaiian/part Hawaiian, Chinese, Filipino, Japanese, other Pacific Islander, and mixed non-Hawaiian/other. Because Native Hawaiian heritage, whether alone or in combination with other ethnicities, reflects unique economic, cultural, and health attributes among residents of the state, respondents indicating Hawaiian either alone or as one of several ethnicities were grouped into the Hawaiian/part Hawaiian category (Sorenson, Wood, & Prince, 2003).

The demographic profile of the survey participants is shown in Table 1.
The respondents who reported recalling the Start.Living.Healthy. campaign were asked to rate the quality of the campaign and its messages. Perceptions of the overall quality of the Start.Living.Healthy. campaign were assessed using a 5-point Likert-type scale ranging from 1 (terrible) to 5 (excellent). These respondents were then asked to rate the campaign's overall message from 1 (very trustworthy) to 5 (very untrustworthy) and from 1 (very believable) to 5 (very unbelievable). They were also asked to rate their response to the television commercials from 1 (very favorable) to 5 (very unfavorable).

Data were analyzed using SPSS 16.0 (Chicago, IL). Differences in categorical responses were analyzed using chi-square analysis. The Likert scale data on attitudes were compiled, and gender differences were assessed by t test. Potential correlations between attitudes toward the campaign messages and poverty level, age group, and

Table 1. Demographic profile of survey participants (N = 3,607)

<table>
<thead>
<tr>
<th></th>
<th>All participants (%)</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poverty level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>130% FPL or below</td>
<td>11.1</td>
<td>401</td>
</tr>
<tr>
<td>130–185% FPL</td>
<td>10.8</td>
<td>390</td>
</tr>
<tr>
<td>Above 185% FPL</td>
<td>59.6</td>
<td>2,150</td>
</tr>
<tr>
<td>No response</td>
<td>18.5</td>
<td>666</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>36.5</td>
<td>1,317</td>
</tr>
<tr>
<td>Hawaiian/part Hawaiian</td>
<td>17.0</td>
<td>612</td>
</tr>
<tr>
<td>Chinese</td>
<td>3.5</td>
<td>128</td>
</tr>
<tr>
<td>Filipino</td>
<td>7.6</td>
<td>274</td>
</tr>
<tr>
<td>Japanese</td>
<td>17.4</td>
<td>627</td>
</tr>
<tr>
<td>Other Pacific Islander</td>
<td>0.6</td>
<td>21</td>
</tr>
<tr>
<td>Other/mixed non-Hawaiian</td>
<td>13.0</td>
<td>469</td>
</tr>
<tr>
<td>No response</td>
<td>4.4</td>
<td>159</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>34.7</td>
<td>1,253</td>
</tr>
<tr>
<td>Female</td>
<td>65.3</td>
<td>2,354</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than high school</td>
<td>3.7</td>
<td>135</td>
</tr>
<tr>
<td>High school graduate</td>
<td>23.9</td>
<td>861</td>
</tr>
<tr>
<td>Some college or college graduate</td>
<td>54.7</td>
<td>1,974</td>
</tr>
<tr>
<td>Some graduate school or advanced degree</td>
<td>17.5</td>
<td>630</td>
</tr>
<tr>
<td>No response</td>
<td>0.2</td>
<td>7</td>
</tr>
<tr>
<td>Age (years)</td>
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<td></td>
</tr>
<tr>
<td>18–34</td>
<td>12.2</td>
<td>440</td>
</tr>
<tr>
<td>35–54</td>
<td>36.9</td>
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</tr>
<tr>
<td>55–74</td>
<td>39.1</td>
<td>1,410</td>
</tr>
<tr>
<td>75+</td>
<td>10.5</td>
<td>379</td>
</tr>
<tr>
<td>No response</td>
<td>1.3</td>
<td>48</td>
</tr>
</tbody>
</table>

Note: FPL = federal poverty level.
education level were correlated. Differences in attitudes by ethnicity were analyzed using a one-way analysis of variance, with Tukey’s post-hoc test.

Results

Awareness of the Start.Living.Healthy. Campaign

Overall, 54% of respondents said that they had heard of the Start.Living.Healthy. campaign (prompted recall) in the past 6 months. Campaign awareness was significantly lower among individuals living in households with incomes below 130% of the FPL (47%), those with less than a high school education (36.6%), men (46.4%), Caucasians (46.0%), and those 75 years of age and older (35.1%). Native Hawaiians (64.0%) and those between 35 and 54 years of age (61.5%) were significantly more likely to have heard of the campaign than were other groups (Table 2).

Awareness of Specific Messages Included in the Campaign

Two messages showed higher levels of prompted recall than the campaign itself—“Fruits and vegetables are good for you” (88.9%) and “People should walk 30 minutes a day for at least 5 days a week” (70.3%). These messages are also carried in a variety of other health promotion campaigns, so recall on these items may reflect more than exposure to Start.Living.Healthy. There were no significant differences in recall of either message on the basis of income. Caucasians (88.6%) and individuals between 18 and 34 years of age (85.4%) were less likely to recall having heard that fruits and vegetables were good for them.

Men were significantly less likely ($p < .05$) than women to recall having seen any of the campaign’s messages, including “Fruits and vegetable are good for you” (85.4% vs. 90.8%), “People should walk 30 minutes a day” (63.6% vs. 73.8%), “Walking gives you energy” (50.8% vs. 65.5%), or “Walking gives you time” (42.5% vs. 52.4%).

The three walking messages created specifically for the Start.Living.Healthy. campaign showed varying levels of prompted recall among other groups. Nearly two thirds (60.4%) of all respondents recalled hearing the message, “Walking gives you energy.” About half recalled the messages, “There is benefit in walking only ten minutes” (52.7%) and “Walking gives you time, because you have more energy to do things” (49.0%).

Younger individuals (age 18–34 years) were significantly less likely to recall having heard any of the messages about walking in the past 6 months, including “Walking gives you energy” (48.5%), “Walking gives you time” (38.7%), “People should walk for 30 minutes 5 days a week” (62.0%), or “There is benefit in walking only 10 minutes” (43.7%). Those between 50 and 74 years of age were more likely to recall the message, “There is benefit in walking only 10 minutes” (56.9%).

Recall of the “Walking gives you time” message was higher among those with incomes under 130% of poverty (54.0%), those of Native Hawaiian (54.8%) or Filipino (65.1%) ethnicity, and those older than 75 years of age (60.6%). Conversely, this message was less successful at reaching either Caucasians (43.3%) or those with postgraduate education (42.5%). Other Pacific Islanders (28.6%) were less likely to recall having heard the message, “Walking gives you energy.”
Awareness of the Campaign in Specific Media Channels

Awareness of Start.Living.Healthy. television, radio, news stories, and supermarket store placements was assessed. Overall, half (51.7%) of respondents recalled seeing Start.Living.Healthy. advertisements on television, including 12.2% who said that they had seen “a lot” of such commercials. There was no significant difference for recall of television advertisements by poverty level or by education. Native Hawaiians (61.8%) and Filipinos (65.4%) were more likely, and Caucasians (42.2%) were less likely to recall having seen at least some of these commercials.
Men (46.4%) were less likely to recall having seen at least some commercials than women (54.6%). Individuals between 35 and 54 years of age (58.6%) were more likely to recall having seen at least some of the television advertisements, while those between 55 and 74 years of age (47.2%) and those age 75 years and older (38.5%) were less likely to recall having seen the television campaign.

Recall of radio commercials was much lower: Only 20% of all respondents recalled having heard Start.Living.Healthy. radio ads. There were no significant differences among income groups on this variable. However, this mode was more successful among Native Hawaiians (27.9%), Filipinos (34.7%), and other Pacific Islanders (33.3%), as well as among younger age groups—those between 18 and 34 years of age (29.7%) or those between 35 and 54 years of age (24.1%). Radio was less effective at reaching Caucasians (13.9%). This was the only media channel that did not show a significant recall differential by gender: Men (20.1%) were as likely as women (19.9%) to recall having heard at least some of the Start.Living. Healthy. radio advertisements.

Fewer than half of all respondents (42.9%) recalled seeing news stories about the campaign. This did not vary by poverty status or education. Filipinos (57.1%), Native Hawaiians (46.5%) and individuals 75 years of age and older (49.1%) were more likely to recall stories in the news media. Caucasians (38.4%), respondents younger than age 35 years (30.5%), and men (38.0%) were substantially less likely to recall news stories about the campaign.

Overall awareness of the campaign materials in supermarkets was low, with only 28.3% recalling having seen Start.Living.Healthy. campaign materials while grocery shopping. However, this varied significantly by income level. Individuals below 130% of the poverty level (39.5%) were significantly more likely to report noticing Start.Living.Healthy. materials in their supermarket. Native Hawaiians (38.7%) and Filipinos (49.6%) were also more likely to recall seeing the campaign in this setting. Grocery-store recall was also higher in those with less than a high-school education (36.4%), those who were high school graduates (34.6%), those younger than 35 years of age (34.6%) and among women (30.2%).

**Perceptions of the Campaign Messages**

There were no significant differences in respondents’ attitudes toward the media campaign on the basis of either income or age. We found a correlation between increasing levels of education and a more positive assessment of the believability \( r = .065, p = .006 \) and trustworthiness \( r = .059, p = .013 \) of the messages, as well as the favorability of the television ads \( r = .086, p = .000 \).

A gender difference did appear in reception of the campaign messages. Men rated the quality of the campaign messages less highly (3.99) than did women (4.09), \( t(1808) = -3.177, p = .002 \). They also rated the messages as less believable (4.01) than did women (4.07), \( t(1805) = -2.007, p = .045 \), and viewed the television commercials less favorably (3.98) than did women (4.13), \( t(1727) = 4.487, p = .000 \).

Assessment of attitudinal differences between the ethnic groups using one-way analysis of variance suggested that Native Hawaiians (4.12) and Filipinos (4.15) rated the overall quality of the campaign messages more highly than did Japanese respondents (3.96) \( F[6, 1731] = 2.585, p = .017 \).
Discussion

As hypothesized, cultural tailoring alone was not sufficient to prevent a knowledge gap between higher and lower socioeconomic status individuals in this multiethnic population. The Start.Living.Healthy. campaign’s cultural tailoring appeared to be effective in reaching its core age group (35–54 years) and ethnic audience targets. The campaign reached Native Hawaiian and Filipino populations particularly well, and it showed no gaps in reaching other Asian ethnicities and those of mixed ethnic heritage. However, the campaign was less successful in reaching individuals with incomes below 130% of the FPL, and those with less than a high school education, leading to the development of a knowledge gap among those individuals at the greatest risk of health disparities.

It is notable, however, that the knowledge gap that developed was not uniform—it varied by both channel and message. This campaign used a broad mixture of media channels—television and radio advertisements, newspaper features, posters and other print media placed throughout the community, and supermarket signage and posters. These messages were supported through special events and publicity-generating activities. The channels used were not preselected to boost reach to any particular group; rather, they were part of a standard media mix. In examining message recall, however, each of these channels appeared to have a different demographic reach.

Television advertisements were the most successful at reaching the campaign’s general audience, with more than half (51.7%) of respondents recalling having seen at least some of the campaign’s television ads—nearly the same percentage as recalled seeing any Start.Living.Healthy. messages at all. There were no differences on this item by income or education, suggesting that television is an effective method for reaching all income segments.

Print media recall, however, was noticeably concentrated in higher income and higher education groups, suggesting that newspaper articles and other print media may skew the reach of the campaign toward higher income subgroups.

Substantially fewer respondents recalled either the supermarket or radio advertisements. It should be noted, however, that the supermarket and radio campaigns, although demonstrating a smaller reach, were the only channels that were significantly more effective at reaching lower socioeconomic status individuals than the general population. Radio was also the only channel that showed equal reach for both men and women.

The supermarket campaign was particularly successful at differentially reaching those groups most likely to be missed in a media-based campaign—those under 130% FPL, those with a high school education or less, and individuals younger than 35 years of age. Recall of the supermarket-based messages was also higher among two primary ethnic groups targeted by the campaign—Native Hawaiians and Filipinos. This is particularly noteworthy because the 2007 supermarket campaign was concentrated within only five stores in one supermarket chain—Foodland. Hawai‘i has several other major food retail chains—Safeway, Times, Star Market, Don Quijote, and Tamura’s, as well as the presence of Walmart, Sam’s Club, Costco, and numerous ethnic groceries. It is possible that involvement of other chains may have substantially increased the reach of the grocery store channel.

These results suggest that it is critical to account for the economic heterogeneity of ethnic-minority audiences in developing a social-marketing health promotion
campaign for these populations (Resnicow, Braithwaite, Dilorio, & Glanz, 2002). It is not sufficient to segment the audience by ethnicity and tailor messages to be culturally relevant. Because lower income and lower education individuals are more challenging to reach in any population, it may be advisable to include additional channel assessment in the formative stages of campaign development, and to direct additional resources to those channels that differentially reach the lowest income quartiles within each target ethnic group (Finnigan & Viswanath, 2008; Maibach, Rothschild, & Novelli, 2002).

Although this campaign was ethnically targeted, the messages used in the campaigns were not segmented to reflect different income groups within Hawaii’s population. Several of the television advertisements modeled changes that were more salient for office workers and/or middle-class households, while two featured the state’s Lieutenant Governor talking about changes he and his family have made. One ad featured a construction worker at a lunchwagon, and another featured a working-class man turning off the TV and going for a 10 minute walk with his wife, but none of the advertisements reflected either the social environments or circumstances of individuals at or below the poverty level.

In spite of this, it appears that the use of radio and supermarket channels may have helped to increase awareness of the campaign among Filipinos and Native Hawaiians with the lowest levels of income and education. Although a knowledge gap still developed as a result of the campaign, these channels may have helped to reduce its impact. It may be that the specific activities involved in the supermarket interventions were a better fit with these populations.

Other research has indicated that low-income workers have substantial practical barriers to participation in health promotion programs (Sorenson, Barbeau, Hunt, & Emmons, 2004). The placement of interactive campaign activities within supermarkets and farmers markets may reduce access barriers for this population and may potentially be an important avenue for boosting the effectiveness of social marketing campaigns among the low-income segment of a campaign’s target population (Herman, Harrison, & Jenks, 2006; Kropf, Holben, Holcomb, & Anderson, 2007). We recommend these channels be carefully considered in similar campaigns. Further research should also be conducted in this area to determine the most effective methods for working with commercial partners such as supermarkets.

Future research should also be conducted on linking awareness of campaign messages and specific campaign activities with telephone- and Internet-based social media, given that this appears to be becoming a promising method for reaching younger individuals within lower income ethnic populations. The Centers for Disease Control (2009) are conducting significant research in this area, and may be able to provide resources for better tailoring of such campaigns (www.cdc.gov/SocialMedia/index.html).

Radio, although the least likely channel to be recalled, was the only channel that reached men as effectively as women. Men showed significantly lower levels of recall of this campaign overall. Men also found the campaign messages less believable, and viewed the campaign less favorably than did women. It is unclear why the campaign was less effective overall at reaching men. Robertson, Douglas, Ladbrook, Reid, and van Teijlingen (2008) recently conducted a meta-review of the literature on male response to general health-promotion messages and found that outside of a few gender-specific arenas such as prostate cancer screening and HIV risk reduction, there is a gap in the literature on this topic. Further research may be needed in this area.
It should also be noted that no data were collected on media consumption beyond hours of television watched and no data were collected on specific supermarket usage patterns. It is possible that differences in recall between the supermarket, radio, and print media channels may in part be due to differential exposure to the campaign in these venues. This aspect should be explored in future studies.

This campaign did not include a workplace component aside from the school-based walking campaign, and many of the public-relations events occurred in the downtown Honolulu area, which has a high concentration of government offices and white-collar workers. This may also have affected the lower levels of recall of print campaign materials and events among lower income individuals. To mitigate the development of a knowledge gap, future campaigns might also consider developing partnerships with low-wage employers to stage walk-at-work campaigns and other public relations activities that involve low-wage workers.

The data on trustworthiness for campaign messages should be interpreted with some caution; we will refine that item in future studies because it is unclear whether participants were providing their perception of the trustworthiness of the message itself or the trustworthiness of the campaign’s source.

Another limitation to this study is that although this campaign targeted a multi-ethnic population, both the campaign materials and the survey were conducted in English. Hawaii has one of the highest proportion of foreign-born residents (17.2%) in the United States, more than one in four (25.5%) Hawaii residents speak a language other than English at home, and these individuals are disproportionately concentrated in the lowest income and educational groups in the state (U.S. Census Bureau, 2007). Although in this survey we assessed language spoken in the home and it was not found to be a significant variable, the effects of language and acculturation may still have affected the reach of the campaign, particularly among individuals living in poverty and those with the lowest levels of education.

References


