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Use of a Social Marketing Campaign to Promote Healthy Eating Behaviors Among Low-Income Caregivers

Lindsey Haynes-Maslow

North Carolina State University, lhmaslow@ncsu.edu

Gretchen L. Hofing

North Carolina State University, glhofing@ncsu.edu

André A. Marks

North Carolina State University, aamarks@ncsu.edu

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Lindsey Haynes-Maslow

Gretchen L. Hofing

André A. Marks

North Carolina State University

Social marketing is a community and public health approach used in nutrition education that helps to complement programming. Researchers evaluated an eight-week social marketing campaign to promote healthy eating behaviors and encourage fruit and vegetable consumption among low-income caregivers. The campaign focused on the benefits of modeling healthy fruit and vegetable intake behaviors for caregivers of young children through television, radio, digital media, billboards, gas pump toppers, posters, and promotional materials. A survey was conducted to measure campaign awareness. Online data tracked digital reach, frequency, and total impressions. The main study findings were campaign awareness and correctly understanding the campaign's tagline. We used descriptive analyses to evaluate the social marketing campaign. Data were collected by calling 7,802 phone numbers, 192 respondents agreed to participate in the baseline survey. Among those, 101 remembered seeing/hearing the campaign, and 70 agreed to complete the survey. Sixty-six out of 70 respondents correctly understood the campaign's message. The campaign was effective in creating awareness of campaign messages. More than 50% of respondents recognized the campaign. Future studies should consider having pre-and post-test surveys, longer-term campaigns, and placing marketing ads at locations that "prompt" behavior change.

Keywords: Social marketing, low-income, behavior change, SNAP-Education

Introduction

Poor dietary habits continue to be a public health problem in the United States. Research has suggested that since caregivers are the primary gatekeepers to children's food and beverage consumption, targeted them with nutrition messages could improve diets (Birch et al., 2007). Positively impacting caregivers eating behaviors is critical to promoting healthier dietary habits among families. Those most at risk for poor diets are low-income families, who are often eligible for the Supplemental Nutrition Assistance Program-Education (SNAP-Ed), the nutrition promotion and obesity prevention education component of the Supplemental Nutrition Assistance Program (SNAP; United States Department of Agriculture, 2018). The purpose of

Direct correspondence to Lindsey Haynes-Maslow at lhaynes-maslow@ncsu.edu

SNAP-Ed is to promote positive behavior change related to eating and physical activity habits for individuals and families on a limited budget (United States Department of Agriculture, 2018). Before 2010, the majority of SNAP-Ed programming included traditional direct nutrition education (such as series-based nutrition classes). In 2010, to complement direct nutrition education efforts, SNAP-Ed formally added policy, systems, and environmental (PSE) changes and social marketing to its scope of work.

The SNAP-Ed Evaluation Framework Interpretive Guide defines a “policy change” as a written plan or course of action designed to influence and determine decisions; a “systems change” as changes made to the rules or procedures within an organization; and an “environmental change” as a change made to the physical, social, or economic environment (United States Department of Agriculture, 2017b). SNAP-Ed programs are required to provide opportunities to reinforce evidence-based nutrition education messages. Social marketing is one of the allowable approaches for reaching low-income individuals with reinforcing nutrition messages and can be seen as an environmental change. Social marketing is a community and public health approach used in nutrition education that helps to complement direct and indirect nutrition programming (Bryant et al., 2007). Additionally, SNAP-Ed programs are required to use an evidence-based approach to ensure that interventions and tools have undergone formative research with the target audience and have been shown to be effective in achieving the intended outcomes. However, limited research on the effectiveness of SNAP-Ed social marketing campaigns has been published in the literature (Tobey et al., 2016).

Social marketing can be a cost-effective approach to positive health behavior change because it can reach more SNAP-Ed eligible audiences than direct nutrition education classes. For example, in January of 2017, 1,470,862 individuals received SNAP benefits in North Carolina (NC Health News, 2007), and the state’s 2017 fiscal year SNAP-Ed budget was \$6,988,074 (United States Department of Agriculture, 2017a). It would be impractical to reach the SNAP-population with individual classes at this level of funding (less than \$5 per person), but if effective, social marketing could reach a much greater portion of the target audience.

Over the past several decades, social marketing has become a specific interest to public health practitioners and researchers. Several federal agencies, including the Centers for Disease Control and Prevention (CDC), the United States Department of Agriculture (USDA), and the United States Department of Health and Human Services have used social marketing to improve diets, increase breastfeeding, promote physical activity, and decrease tobacco use (Coreil, 2010).

Social marketing is the use of commercial technology applications to plan, design, implement, and evaluate marketing campaigns to influence voluntary behavior change of target audiences to promote positive change (Andreasen, 1995). It includes social media (e.g., Facebook, Twitter, Instagram) and other marketing channels such as television, radio, and billboards. Andreasen (2002) listed six benchmark criteria for increasing healthy eating using social marketing. They

were: (a) having a behavioral objective to evaluate, (b) choosing a specific group of people as a target audience, (c) formative research with the target audience, (d) offering the exchange of short- or long-term benefits for the target audience, (e) using multiple marketing channels to deliver campaign messages, and (f) knowing direct or in-direct campaign competition, such as those with competing or contradictory messages.

Over the past several decades, multiple studies using social marketing have been conducted to improve nutrition. In a literature review of 34 studies conducted between 2000-2012 aimed at using social marketing to improve healthy eating, Carins and Rundle-Thiele (2014) compared studies that used Andreasen's 2002 criteria to those who did not. They found that 16 out of the 34 studies following a majority of Andreasen's social marketing benchmark criteria were more effective in improving dietary behaviors than studies that only focused on just social media or advertising. Among these 16 studies, 14 resulted in positive dietary change. Two studies that used all six of the benchmark criteria that had significant changes in increasing fruit and vegetable intake among adults included the *Eat Smart Move More* campaign (Neiger et al., 2001) and the *Energize Your Life!* campaign (Shive & Morris, 2006). Two other studies that only used three benchmark criteria, *Healthy Hawaii* (Maddock et al., 2006) and *Go for 2 & 5* (Pollard et al., 2009), had mixed results.

In a more recent social marketing campaign, a non-profit in New York City implemented a six-week campaign to raise awareness about obesity and increase involvement in type-2 diabetes prevention, nutrition, and fitness programs offered at their organization (George et al., 2016). To implement the campaign, 100 advertisements encouraging healthier eating habits were placed on bus stop shelters, buses, subway cars, social media, websites, and print materials. Using social media metrics, there were more than 11,000 visits to the organization's Facebook page. Additionally, using an 18-month follow-up street intercept survey ($N = 171$), 41% of respondents saw the print materials. Of those respondents, approximately 45% correctly identified the campaign's social marketing image and message, 31% contacted the organization about their prevention programs, and 13% remembered the tagline. Additionally, 40% of respondents who reported recognizing the campaign said they ate more fruits and vegetables, less red meat, and overindulged less.

Other ways to measure the effectiveness of social marketing campaigns include campaign awareness and changes in knowledge, motivation, and attitudes towards behavior change, and as listed in the paragraph above, individual dietary change (Carins & Rundle-Thiele, 2014). In 2017, North Carolina State University's SNAP-Ed program, Steps to Health, implemented a social marketing campaign called, *They Learn from Watching You*. The *Steps to Health* campaign was implemented through North Carolina State University's Cooperative Extension program. This study informed practitioners on how to implement social marketing campaigns using SNAP-Ed funding as well as how to evaluate them, and their potential reach and impact on SNAP-eligible populations.

The primary goal of the campaign reported here was to promote awareness about the importance of modeling healthy eating behaviors and encourage fruit and vegetable consumption among low-income female caregivers. Therefore, we evaluated campaign awareness (whether SNAP-Ed eligible populations saw the campaign) and whether they understood the campaign's message.

Methods

Formative Evaluation Research

Three staff from Steps to Health, trained in qualitative methods, assessed previously tested core nutrition messages developed by the USDA that focused on improving fruit and vegetable intake among low-income caregivers (White et al., 2011). This study's methods and results are more fully described elsewhere (United States Department of Agriculture, 2014). We focused on messages that would resonate with low-income female caregivers with young children (ages 10 years and under). Five USDA nutrition messages were presented to focus group participants, including (a) They learn from watching you. Eat fruits and veggies and your kids will too, (b) They take their lead from you. Eat fruits and veggies and your kids will too, (c) Let your kids be produce pickers. Help them pick fruits and veggies at the store, (d) Want your kids to reach for a healthy snack? Make sure fruits and veggies are within reach, and (e) When they come home hungry, have fruits and veggies ready to eat. Additionally, to complement the nutrition education message, researchers used six images similar to previously tested USDA images and asked participants to rank them from least to most favorite (see Appendix).

To ensure existing USDA nutrition messages and images would resonate with a North Carolina-specific audience, the research team conducted both key informant interviews ($N = 12$) and three focus groups ($N = 12$) with low-income female caregivers. Focus group participants were recruited from churches within a low-income qualifying census tract, elementary schools with at least 50% of the students receiving free- or reduced-priced meals, Head Start centers, and the Special Supplemental Nutrition Assistance Program for Women, Infants, and Children (WIC) clinics. Participants were eligible if they were (a) aged 18 years or older, (b) had at least one child 10 years old or younger, and (c) spoke English. Prior to starting each interview or focus group, a trained member of the Steps to Health team explained the purpose of the study and how the information would be used to create a social marketing campaign. Participants were given a study information sheet and asked to provide verbal consent. All interviews and focus groups were digitally recorded, and content analysis was used to analyze the qualitative data (Guest et al., 2002). This study was approved by North Carolina State University's Institutional Review Board.

During the interviews and focus groups, the moderator asked participants what they thought about various social marketing images, such as what they liked, what they did not like, and what they would change. They were also asked to rank their preference for nutrition education messages and images. From a sampling of five messages, nearly 50% of participants ranked,

“They learn from watching you. Eat fruits and veggies, and your kids will too” as their favorite tagline. Among the images (see Appendix), image #3, a mother and daughter making a salad together in the kitchen, was the most liked during the interviews and focus groups. However, suggested changes to the image were that the salad should have more chopped produce, the kitchen should look more like a low-income mother’s kitchen, and the mother’s shirt should be a brighter color. These changes were applied when creating the final social marketing ad (see Figure 1).

Figure 1. “They Learn from Watching You” Social Marketing Campaign Ad



Based on the final social marketing image and nutrition message, Steps to Health created television and radio public service announcements targeted at low-income female caregivers in the study specified geographic area. Steps to Health hired an unmarried African American mom (who was also a locally known radio personality) and her six-year-old son for the television and radio commercials. During the commercial, she discussed the struggles of managing multiple priorities while raising a son yet emphasized the importance of modeling healthy dietary behaviors for her son. Both the television commercial and radio ad ended with the tagline, “They learn from watching you. Eat fruits and veggies, and your kids will too.” Steps to Health specifically chose a spokesperson who was relatable to the target audience in the intervention counties. The spokesperson and her son were representative of the target audience’s

race/ethnicity based on U.S. census data. Research has shown that using peers for health promotion messages is particularly effective among racial/ethnic minority populations (Fisher et al., 2010, 2014).

Intervention

We aimed to satisfy Andreasen's six benchmark criteria for social marketing (Andreasen, 2002). However, due to study design limitations, we could not fully evaluate our behavioral change objective of increasing fruit and vegetable consumption among low-income female caregivers. Additionally, we could not fully evaluate what direct or indirect campaign competition existed in our study setting due to limited funds. Therefore, only four of the six benchmark criteria were met.

The eight-week social marketing campaign ran from July through August 2017. Steps to Health had a budget of \$35,000 for the social marketing campaign and \$5,730 for data collection and evaluation. Because SNAP-Ed funded this study, researchers were not allowed to use incentives to compensate survey respondents for their time in completing telephone surveys about the social marketing campaign (USDA, 2017b). The campaign provided messaging about the benefits of modeling fruit and vegetable intake behaviors for female caregivers of young children. The campaign was designed to appeal primarily to female caregivers between the ages of 18-34, and secondarily, to female caregivers age 50 and older, with children ages 10 years and younger in their care. These women lived in 42 low-income census tracts (defined as having 50% or more of the population being at or below 185% of the federal poverty level) located within ten counties in southeastern North Carolina: Carteret, Craven, Duplin, Jones, Lenoir, New Hanover, Onslow, Pender, Sampson, and Wayne. These are a mix of rural and urban counties. A total of 58,721 households lived in the 42 SNAP-Ed eligible census tracts.

Campaign messaging was presented through various marketing channels, including television, radio, digital media, billboards, gas pump toppers, posters, and promotional materials. Geographic and behavioral targeted digital and mobile ads were used to reach the target audience while they were on their mobile devices, tablets, or computers. Billboards were placed on two major highways in Wayne and Carteret Counties. Television and radio public service announcements ran almost daily during the campaign in all ten counties. Gas pump toppers were placed at four convenience stores in Duplin and Pender counties so individuals could see the social marketing image and message when they pumped gas, as well as on window clings as they entered the convenience store. As part of these paid advertisements, various third-party vendors reported reach and frequency of customers that saw or heard our campaign. North Carolina State Cooperative Extension employees and Steps to Health staff placed posters in locations such as WIC offices and regional grocery stores.

Data Collection

A retrospective survey was created to measure campaign awareness and understanding of the campaign's message or tagline. Steps to Health hired the Center for Urban Affairs and Community Services at North Carolina State University to collect data over the phone via trained interviewer-administered surveys to eligible survey respondents at the end of the eight-week social marketing campaign. Survey respondents were eligible to participate if they (a) lived in one of the 42 low-income census tracts, (b) were female, (c) were aged 18 or older, (d) had at least one child aged 10 years or younger, and (e) had heard or seen the social marketing campaign. A landline telephone sample was drawn from phone listings in ten counties, and a cell phone sample was drawn from numbers linked to these areas purchased from a survey sampling company (Sampling Survey, 2018). Cell phone numbers were screened to assure that survey respondents lived in the targeted counties and census tracts. Interviewers made at least three attempts to contact respondents before they were excluded from the study.

Survey and Measures

Retrospective surveys were conducted between the end of August and September of 2017. Questions included demographic characteristics such as age, household size, race/ethnicity, education, monthly household income, marital status, receipt of government assistance (SNAP, WIC, Medicaid, and Work First), and exposure to the social marketing campaign. To measure campaign awareness, survey respondents were asked whether they saw the campaign via television, radio, Facebook, digital ads (such as on their phone, tablet, or computer), billboards, gas stations, and/or posters. Participants were also asked the open-ended question, "What does 'They learn from watching you' mean to you?"

Data Analysis

Media: Television, radio, social media, digital ads, billboards, gas pump toppers, and posters were measured using reach, frequency, and total impressions. Reach included the number of unique, unduplicated individuals in the target demographic that saw the social marketing message via each media channel. Frequency included the number of times each unique individual saw the same social marketing message. Total impressions was calculated by multiplying the unique individual reach and frequency. Third-party vendors, including Double Click, Facebook, Geopath OOH Ratings, National Association of Convenience Stores, Nielson Company, and Rentrak, use online data to monitor the reach and frequency of the different ads. Additionally, NC State Extension staff self-reported the use of posters to collect the information necessary for calculating reach.

Surveys: Retrospective responses, including survey respondents' demographics and campaign awareness, were summarized using descriptive statistics with the statistical software program Stata (StataCorp, 2015).

Results

Participant Surveys

Eight counties and 42 low-income census tracts were represented in the final sample: Craven, Duplin, Lenoir, New Hanover, Onslow, Pender, Sampson, and Wayne. A total of 7,802 phone numbers were retrieved after purchasing the landline and cell phone sample dataset and contacted (see Table 1). Nearly 60% of respondents were contacted three times (they either did not answer the phone or a voicemail was left), so they were no longer eligible to participate. Based on the eligibility criteria that participants live in one of the 42 low-income census tracts in these counties, were female, aged 18 or older, and had at least one child aged 10 years or younger, 23.4% (1,823 respondents that were called and picked up the phone) were not eligible to participate. Additionally, 13.8% (1,073) phone numbers were out-of-service. Only 2.5% (192) of respondents agreed to participate in the survey.

Table 1. Summary of Purchased Telephone Numbers (N = 7,802)

Status	Number	Percent
Attempts maxed out	4,582	58.7
Respondent ineligible	1,823	23.4
Out-of-service number	1,073	13.8
Respondent Agreed to Participate	192	2.5
Business/Government phone number	51	0.7
Hearing or Language Barrier	32	0.4
Eligible but Declined to Participate	31	0.4
Fax Number	18	0.2
Total	7,802	100.1

Out of the 192 survey respondents who agreed to participate, a total of 101 (52.6%) remembered seeing or hearing about the campaign and continued the survey. Seventy survey respondents agreed to complete the retrospective survey (response rate = 69%). The average age of survey respondents was 35.4 years (see Table 2). Nearly 70% of survey respondents self-identified as African American, 14.2% as white, 12.8% as Hispanic/Latino, and 1.4% as multi-racial. While half of survey respondents had completed at least some college, 54.3% received SNAP, 57.1% were on Medicaid, and 31.4% on WIC. The average survey respondent lived in households with four members. Approximately 40% of survey respondents reported their monthly household income as less than \$2,671 per month.

Table 2. Participant Demographics (N = 70)

Characteristic	Number	Percent
<i>Age</i>		
Mean (Standard Deviation)	35.4 (10.6)	
Prefer Not to Answer	5	7.1
<i>Number of People in Household</i>		
Mean (Standard Deviation)	4 (1.3)	
Prefer Not to Answer	2	2.9
<i>Highest Level of Education</i>		
8th grade or less	3	4.3
Some high school	5	7.1
High school graduate or GED	12	17.1
Some college	35	50.0
College graduate	8	11.4
More than college	3	4.3
Prefer Not to Answer	4	5.7
<i>Marital Status</i>		
Married/Living with Partner	29	41.4
Single/Never Been Married	32	45.7
Divorced	5	7.1
Separated	2	2.9
Widowed	1	1.4
Prefer Not to Answer	1	1.4
<i>Monthly Household Income</i>		
Less than \$1,980	13	18.6
\$1,981-\$2,670	13	18.6
\$2,671-\$3,360	9	12.8
\$3,361-\$4,050	1	1.4
\$4,051-\$4,740	3	4.3
Greater than \$4,741	1	1.4
Prefer Not to Answer	20	28.6
<i>Race/Ethnicity</i>		
African American	46	65.7
White/Non-Hispanic	10	14.2
Latino/Hispanic	9	12.8
Multi-Racial	1	1.4
Prefer Not to Answer	4	0.06
<i>Receipt of Government Assistance</i>		
SNAP	38	54.3
WIC	22	31.4
Medicaid	40	57.1
TANF	1	1.4
Work First	5	7.1
Prefer Not to Answer	10	14.3

Reach and Impressions

Media

Table 3 summarizes the media reach, frequency, and impressions based on implementing the social marketing campaign in 42 census tracts for two months among 58,721 households. It should be noted that more than one target individual could have been living in a household. Therefore, the number of target individuals reached in this campaign is sometimes greater than the number of total households. Additionally, ineligible individuals living in an eligible household may have been counted in the reach, frequency, and total impressions. Last, one individual could have seen the campaign on multiple media channels (television, Facebook, radio, and a digital ad). This is discussed further in the limitations section. Using information from Double Click, Facebook, Geopath OOH Ratings, National Association of Convenience Stores, Nielson Company, and Rentrak, and North Carolina State University Cooperative Extension staff self-report of posters, it is estimated the campaign reached 902,382 target audience members an average of three times each, for a total of 2,707,146 impressions. The majority of the target audience was reached using digital ads via mobile devices, tablets, or computers. According to Facebook analytics, individuals interacted with the campaign by either sharing, clicking, liking, or commenting on the ad, and watching the social marketing commercial online through Facebook. Television had the second highest reach; however, unlike Facebook, the researchers were unable to gauge how the audience interacted with the commercial (i.e., whether they paid attention or if they just had the television on in the room). Billboards and posters had the lowest reach and frequency among all marketing channels.

Table 3. Social Marketing Campaign Media Reach, Frequency, and Total Impressions

Media Channel	Reach^a	Frequency^b	Total Impressions
Digital/Mobile	374,706	5	1,873,530
Television	351,842	3	1,055,526
Facebook	75,572	3	226,716
Radio	45,600	3	136,800
Gas Pump Toppers	34,008	3	02,024
Billboards ^c	16,214	3	48,642
Posters ^d	4,440	1	4,440
Total	902,382		2,707,146

Notes. ^aReach refers to the number of unique, unduplicated individuals who saw the campaign via each media channel. ^bFrequency refers to how often a unique individual saw the campaign. ^cThe billboards reach number is for only women age 21-34. ^dPoster reach and frequency were calculated by counting each item distributed to an individual as 1, with a frequency of 1.

Surveys

Survey respondents were asked to indicate the venues where they saw or heard the campaign (see Table 4). The most commonly mentioned source was television, cited by 41 participants

(58.6%) followed by posters ($n = 31$; 44.3%), billboards ($n = 22$; 31.4%), and Facebook ($n = 12$; 17.1%). Digital ads ($n = 11$; 15.7%), gas stations ($n = 11$; 15.7%), and radio ($n = 9$; 12.8%) were the least frequently mentioned marketing channels. Respondents ($n = 31$) reported seeing posters at grocery stores ($n = 22$; 71.0%), WIC clinics ($n = 4$; 12.9%), convenience stores ($n = 3$; 9.7%), and farmer's markets ($n = 2$; 6.5%).

Table 4. Campaign Awareness: Self-Reported Source of Marketing Channel ($N = 70$)

Marketing Channel Source	Number	Percent
Television	41	58.6
Radio	9	12.8
Facebook	12	17.1
Digital Ad	11	15.7
Billboard	22	31.4
Gas Station	11	15.7
Poster ^a	31	44.3

Note. ^aAmong those who saw a poster, locations included a grocery store ($n = 22$), WIC clinics ($n = 4$), Farmer's Markets ($n = 2$), other convenience stores ($n = 3$).

When asked, “What does ‘They learn from watching you’ mean to you?” 66 out of 70 survey respondents correctly understood the tagline. Among those 66, they expressed an understanding that modeling healthy behaviors could influence what their children ate. As one survey respondent stated, “Lead by example, if your kids see you eating healthy, they will do the same.” Some participants also connected the campaign message to fruit and vegetable intake. For example, one mother commented, “Your children are more likely to eat foods such as fruits and veggies if they see you eating them; it works with my kid.” Four survey respondents did not understand the message of “They learn from watching you. Eat fruits and veggies and your kids will too.”

Discussion and Conclusions

The social marketing campaign's short-term goal was to promote awareness about the importance of modeling healthy eating behaviors among low-income female caregivers. Unfortunately, because the study design lacked baseline data regarding respondents' attitudes towards modeling healthy behaviors before the social marketing campaign launched, we cannot definitively claim the campaign educated or changed respondents' attitudes regarding modeling healthy behaviors. However, based on our study's results, the social marketing campaign was effective in creating awareness of campaign messages among those who were surveyed. A total of 7,802 phone numbers were retrieved after purchasing the telephone phone sample dataset and contacted, 192 (2.5%) of respondents agreed to participate in the baseline survey, 101 (1.3%) remembered seeing the social marketing campaign, and 70 (0.9%) agreed to participate in the follow-up survey.

We found that among the 70 respondents, more than 50% of the telephone-surveyed low-income female caregivers recognized the social marketing campaign. Nearly 60% of telephone-surveyed low-income female caregivers saw the campaign on television, 45% saw it on posters, and 34% saw it on billboards.

One interesting result from this study is comparing the findings from the self-report survey to the digital analytics for the various media channels. While respondents who completed the telephone-survey reported that television was the primary source for seeing the campaign, based on digital analytics, the target audience was reached primarily using digital ads via mobile devices, tablets, or computers. For other SNAP-Ed programs considering where to invest funding in their social marketing efforts, television was the most expensive portion of this campaign, whereas digital ads were the least expensive.

Reger et al. (2008) found that social marketing campaigns are most effective at behavior change the longer they run and if they are placed in a location that reinforces the tagline or message. For example, our social marketing campaign could have been more strategically located at retail food outlets. Therefore, customers shopping in these stores could have seen the message, “They learn from watching you. Eat fruits and veggies and your kids will too” while also being in a place where they could act on the message (i.e., purchase fruits and vegetables at the store). Future social marketing studies should ensure that if there is a behavioral prompt, individuals can quickly act on the prompt.

One challenge to evaluating the effectiveness of the They Learn from Watching You campaign is that the SNAP-Ed Guidance prohibits the ability to incentivize participants in completing surveys that are not related to direct education (USDA, 2017b). Several studies have shown the importance of offering incentives, either monetary or nonmonetary, to increase the response rate. Studies that offered some type of incentive had a higher response rate than studies that did not offer any incentive (Church, 1993; Mercer et al., 2015; Pedersen & Nielsen, 2016; Van Hoewyk et al., 1999). Church et al. (1993) found that monetary incentives averaging between \$1 and \$2 yielded an increase in survey response rates of 19.1%, a 65% increase. A small investment with SNAP-Ed funding could yield high returns and potentially allow for better programs designed for the target audience. Because researchers could not compensate individuals for their time to take our survey, this may have contributed to the low response rate.

Other SNAP-Ed social marketing campaigns have used separate grants or funding to help increase their sample size. One example of a SNAP-Ed social marketing initiative effective at increasing fruit and vegetable consumption among low-income families was Oregon State University Extension Service’s Food Hero campaign (Tobey et al., 2016). This campaign was delivered via multiple channels, including online, billboards, and grocery store cart ads. The campaign was tested in intervention and control counties. Between August and October 2009, results showed in counties that had the Food Hero campaign, participants had better name recall

compared to control counties (12% versus 3%) and better interpretation of intended messages (60% versus 23%). Additionally, participants in the intervention counties were more likely to report that healthy food preparation was less time consuming, and it was easier to get their family to eat fruit.

Another SNAP-Ed study that used supplemental funds tested the impact of a grocery-based point of access intervention, in combination with billboards, on fruit and vegetable intake (Scott et al., 2014). This social marketing campaign used in-store promotional activities (i.e., taste tests) and banners in nine grocery stores featuring the same message and image posted on billboards. Out of 628 surveys with shoppers, 27% bought vegetables that they had not intended to purchase due to the campaign and 50% remembered the food demonstrations.

Blistein et al.'s (2016) study, *Building and Strengthening Iowa Community Support for Nutrition and Physical Activity (BASICS)*, combined direct education with a social marketing campaign. They included three study groups: (a) BASICS, (b) BASICS plus a social marketing intervention, and (c) a control group that received neither BASICS nor the social marketing intervention. They found that among 1,037 respondents (third-grade students across 33 elementary schools and their parents), students in the BASICS plus social marketing intervention increased their fruit and vegetable consumption and were 1.3 times more likely to consume low-fat or fat-free milk than the two other study groups. This study is an example of how SNAP-Ed should combine direct education with social marketing to reinforce evidence-based nutrition messages. Future Steps to Health social marketing campaigns should be linked with direct education to help reinforce nutrition messages to increase campaign awareness and effectiveness.

Limitations

Several limitations occurred during the social marketing campaign evaluation, including the eligibility criteria, study design, incentivizing survey participation, and overestimation of campaign reach. The eligibility criteria for the study significantly increased the number of phone calls required to complete a survey. Additionally, because this study used both landlines and cell phones, in some households, cell phones belonged to a male household member, requiring an additional phone call to the female respondents' cell phone. Therefore, contacting eligible respondents that were willing to complete the brief survey was time-consuming. The second major limitation of the study pertained to the study design. Due to the inability to compensate low-income individuals for their time, we could not collect a larger sample size of pre and post-test survey data. Studies on retrospective data have suggested that they may be less accurate when asking participants about a measure after a certain amount of time has passed instead of asking them about a more recent event. This becomes even more of an issue if the behavior is seen as unimportant by the respondent (Sudman & Bradburn, 1973). For this reason, the results of this study should be interpreted carefully. Due to the social marketing campaign's narrow geographic scope, this study's results may not be generalizable to other states. The last limitation

of this study is the overestimation of reach, frequency, and total impressions. While 58,721 households were targeted via our social marketing media campaign, more than one target individual could have been living in a household, and ineligible individuals residing in an eligible household could have been counted in the reach. For example, if a teenager borrowed his mother's phone in an eligible household and saw our social marketing campaign, this would be counted towards the reach. Double Click, Facebook, Geopath OOH Ratings, National Association of Convenience Stores, Nielson Company, and Rentrak are unable to determine which individual in a household sees or hears a campaign. Another example of overestimation of reach is if one individual saw the campaign across multiple media channels (television, Facebook, radio, and a digital ad) – which would have counted as a total of four reaches, instead of one.

Implications

Steps to Health “They Learn From Watching You” social marketing campaign found that over half of respondents recognized the campaign. Among those who recognized the campaign, nearly 60% saw it on television, 45% posters, and 34% billboards. Social marketing has been shown as a promising strategy to improve the dietary habits of the public, including low-income populations (Andreasen, 1995; Blitstein et al., 2016; Evans et al., 2010; Gordon et al., 2006; Havas et al., 1995; Pollard et al., 2008). Social marketing includes planning, designing, implementing, and evaluating campaigns with the goal of influencing voluntary positive behavior change among target audiences (Andreasen, 1995). It includes social media and other marketing channels such as television, radio, billboards, and in-store ads.

Despite the limitations of this study, we found that our social marketing campaign was effective in creating awareness of a campaign message among those that completed our survey. While the SNAP-Ed program emphasized using evidence-based interventions and the importance of evaluation, allowing incentives to compensate low-income individuals for their time in responding to surveys could increase sample size and allow SNAP-Ed programs to create more rigorous evaluation protocols. Future SNAP-Ed social marketing campaigns should consider having longer-term campaigns, as well as placing social marketing ads at locations that prompt an individual to make a specific behavior change immediately. Additionally, ensuring that social marketing coupled with direct education is an important component in addressing behavior change, as positive behavior change requires multi-level interventions.

Future studies should focus on creating and implementing social marketing campaigns for various racial/ethnic audiences since our research focused predominately on low-income African Americans. Additionally, it would be helpful to test the campaign more broadly across North Carolina and various regions in the U.S. This would include conducting formative research (such as interviews, focus groups, and surveys) to see if any adaptations are necessary to make the campaign culturally appropriate and relevant for other geographic locations.

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Lindsey Haynes-Maslow, PhD, MHA, is an Associate Professor and Extension Specialist in the Department of Agricultural & Human Sciences at North Carolina State University. She is the Principal Investigator of North Carolina State University’s SNAP-Education program, Steps to Health.

Gretchen L. Hofing, MPH, RD, was in the Department of Agricultural & Human Sciences at North Carolina State University. She was the Program Coordinator of North Carolina State University’s SNAP-Education program, Steps to Health.

André A. Marks, MBA, was in the Department of Agricultural & Human Sciences at North Carolina State University. He was Social Marketing Associate of North Carolina State University’s SNAP-Education program, Steps to Health.

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Appendix: Social Marketing Image Survey

Keeping in mind the phrases you ranked as your favorite, please rank the picture you like best from most favorite (rank = 1) to least favorite (rank = 6).



1. Rank _____



4. Rank _____



2. Rank _____



5. Rank _____



3. Rank _____



6. Rank _____