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Use of Formative Research to Develop a Healthy Eating Social Marketing Campaign for Low Resource Families in Mississippi

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By

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Mississippi leads the nation in chronic disease, obesity, poverty, and food insecurity. Preventing further growth in disease rates, requires a cultural shift towards a 'healthy eating' environment. Healthy patterns of food consumption along with physical activity can prevent and reduce these rates. A state-wide 'healthy eating' social marketing campaign could motivate voluntary population behavioral change. Three different methodologies were used to develop a strategy for Mississippi: a systematic review of the literature, a state-wide phone survey (quantitative), and focus groups (qualitative). A systematic review of articles published since January 2007 was conducted, using PRISMA guidelines. Five databases were searched with key terms. Past healthy eating campaigns in the US focused on children and parents as the target audiences and consumption of fruits and vegetables as the behavioral outcome. A web-based campaign from Oregon, was one of the successful models; in 2015, their website had over 125,000 monthly users. This campaign appeals to mothers as its primary audience and produces recipes that are tested and 'kid-approved'; almost all the recipes include fruits and/or vegetables. The phone survey data was analyzed for participants

who were responsible for children under the age of 18 in their homes. Values, attitudes, beliefs and barriers were analyzed using univariate frequencies. Chi Square tests were conducted to investigate the differences between demographic groups. The survey found that Mississippi SNAP-eligible and recipients have positive beliefs and attitudes towards 'healthy eating.' A majority (60%) agreed that cost was a barrier to 'healthy eating' while 35% thought that access to quality fruits and vegetables was lacking. Focus groups (n=17), from 12 counties were conducted with mothers, grandmothers, aunts who were caretakers of young children. Findings indicated participants had a broad range of perceptions and practices for 'healthy eating.' They were motivated to eat healthy for their personal health and for their children. Mothers and guardians are motivated to satisfy their children's hunger, often a barrier to healthy eating. The findings indicate that time, convenience, and cost are also barriers. A consumer-oriented, culturally appropriate social marketing campaign in Mississippi should resonate with mothers and their need to satisfy their children.

Key words: food insecurity, social marketing, nutrition, Mississippi, limited resources

DEDICATION

In loving memory of my late grandmother, Mary Kuriyan.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER I

INTRODUCTION

One of the more important public health burdens in the U.S. is the high rate of obesity. Obesity, associated with chronic conditions diabetes, heart disease and cancer, has increased approximately three-fold, during the past several decades(Ogden et al., 2016; Ogden, Carroll, Kit, & Flegal, 2012; G. K. Singh, Siahpush, & Kogan, 2010). In the US, about 1 in 3 adults were obese in 2011-2014 while compared to in the 1970s when about 15% of adults were obese (Flegal, Carroll, Ogden, & Johnson, 2002; Ogden, Carroll, Fryar, & Flegal, 2015). The prevalence of obesity for children is an alarming 17% (Ogden et al., 2015). Furthermore, research has indicated that overweight children can experience adverse health outcomes even during childhood. Children as well as adults are now experiencing chronic health problems such as type II diabetes, and hypertension. Childhood obesity may be associated with an increased likelihood of adult obesity (Freedman, Srinivasan, Berenson, & Dietz, 2007; Kaur, Lamb, & Ogden, 2015; Singh, Mulder, Twisk, Van Mechelen, & Chinapaw, 2008).

The U.S. Dietary Guidelines for American recommends a balanced diet along with physical activity for a healthy lifestyle (U.S. Department of Health and Human Services & U.S. Department of Agriculture, 2015). Having a quality diet is associated with less risk of chronic disease. Good nutrition is vital for growth and development in children and across the lifespan. Conversely, a poor diet is related to higher rates of

obesity, overweight and chronic diseases. Despite the information available about a healthy diet, fewer than 20 percent of all Americans meet the minimum recommendations set forth by the US Dietary guidelines (Krebs-Smith, Guenther, Subar, Kirkpatrick, & Dodd, 2010).

While most Americans are not eating healthy per se, some populations seem to be more vulnerable to poor dietary quality and obesity. Social inequalities such as socio-economic status may explain disproportionate obesity rates among minority adults and children (G. K. Singh et al., 2010). As obesity has been rising, food insecurity has followed in a modest rise (Dinour, Bergen, & Yeh, 2007). According to the United States Department of Agriculture (USDA), food insecurity is "the status of not having enough resources to eat or acquire acceptable foods in socially acceptable ways"("USDA ERS - Measurement," 2016). The relationship between food insecurity and obesity is complex as they seem to be opposite conditions. Food insecurity may or may not be accompanied by hunger while obesity is associated with overconsumption (Dietz, 1995; Dinour et al., 2007; Townsend, Peerson, Love, Achterberg, & Murphy, 2001). Coping strategies to endure the lack of food may explain cycles of overconsumption. Parents/guardians, in particular mothers, may protect their children and give them more food while money is available. They may choose higher caloric foods for the family, which are cheaper, to make up for having smaller or infrequent meals (Dinour et al., 2007; Lombe, Nebbitt, Sinha, & Reynolds, 2016; Morales & Berkowitz, 2016).

Mississippi

Mississippi is among the states with the highest rates of poverty and obesity in the country. About 19% of Mississippi residents lived at or below the poverty level in 2015

(U.S. Census Bureau, 2016). Based on the Economic Research Service, USDA, 50 out of 82 counties in Mississippi (61%) are 'persistently poor', meaning that 20% of their population has been living in poverty over the last 30 years ("USDA ERS - Geography of Poverty," 2017). Adult obesity in Mississippi reached 35% in 2011, was estimated to be 35.6% in 2015 and most recently reported as 37.3% in 2016 (Robert Wood Johnson Foundation, 2017).

Food insecurity is a major concern for low resource adults and families with children, especially in Mississippi. Based on data from the Economic Research Services at the USDA, in 2015, over 1 million (1,138,000) Mississippi's households, 20.8%, were deemed to be food insecure while 7.9% were deemed to have very low food security(Coleman-Jensen, Rabbitt, Gregory, & Singh, 2016). Mississippi's rates are statistically significantly higher than the 2015 national averages for food insecure households, 12.7% and for very low food security, 5.0% (Coleman-Jensen et al., 2016).

In 2015, about 41.1% of low income families were headed by single females, while a smaller percentage of SNAP-eligible families, 10.5%, were married couples (U.S. Census Bureau, 2015b). A special characteristic of Mississippi is that a large number of caretakers of children are grandparents. According to 2015 U.S. Census data, 55.4% of grandparents living with their grandchildren also have responsibility for them compared to grandparents in the overall US, 37.3% (U.S. Census Bureau, 2015a). Most limited resource families in Mississippi are African-American (USDA, Food and Nutrition Service, 2017).

Role of nutrition education and SNAP-Ed

The Supplemental Nutrition Assistance Program (SNAP) is the largest food assistance program in the United States. Its mandate is to provide financial assistance to those who are food insecure and improve the nutritional status of individuals with limited resources. SNAP-Ed is the nutrition promotion and obesity prevention component of SNAP. The purpose of the SNAP-Ed Program is to provide resources and assist eligible families to make food choices consistent with the USDA guidelines (Andreyeva, Tripp, & Schwartz, 2015; USDA, 2017).

Guided by the socio-ecological model, the SNAP-Ed program, nationally and in Mississippi, is focusing its work on multiple settings at multiple levels in targeted communities. 'Healthy eating' can be promoted in a multitude of settings with multiple audiences from individuals to families to schools to government to media (USDA, 2017). In Mississippi, SNAP-Ed provides direct education, cooking classes, assistance with community and school gardens, and is working in school cafeterias with wellness committees. The goal is to change the food environment to a culture of healthy eating.

An effective nutrition education employs "any combination of educational strategies, accompanied by environmental supports, designed to facilitate the voluntary adoption of eating and other food –and nutrition-related behaviors conducive to health and well-being; it is delivered through multiple venues and involves activities at the individual, community and policy levels (Contento, 2012)." Other elements of an effective strategy includes: a behavior-action goal, use of theory/evidence, duration and intensity, family involvement, tailoring the relevant messages, the use of creative technology and the involvement of the wider community (Contento, 2012).

Thomson and Ravia (2011) conducted a review of 144 individual behavioral interventions at schools from 2005-2010. The review demonstrated that while nutrition programming can be effective in increasing fruits and vegetable consumption and other changes, these increases were moderate, essentially not enough to meet recommendations (Thomson & Ravia, 2011). In order to reach more people in Mississippi to make a concerted behavior change, and to start a social cultural change, a larger nutrition education effort is needed in addition to current strategies. Social marketing is a type of nutrition education intervention that can reach a large population (Thomson & Ravia, 2011). Based on the needs in Mississippi, the time is right for an effective 'healthy eating' social marketing campaign

Social Marketing

Social marketing is the concept of changing behavior on a population level by marketing a socially desirable change. Unlike commercial marketing which is trying to sell a product for consumption, social marketing's ultimate goal is to make social change by changing behavior. "Social marketing is the application of commercial marketing technologies to the analysis, planning, execution and evaluation of programs designed to influence the voluntary behavior of target audiences in order to improve their personal welfare and that of their society." (Andreasen, p 7, 1995)

Grounded in theory, social marketing campaigns reflect a multi-disciplinary approach. To understand where to focus behavior, social marketing uses primarily the Transtheoretical Model which states that people change behavior over time in a series of stages (Andreasen, 1995). To be effective within the stages, other theories are also referenced. Azjen's Theory of Planned Behavior (Ajzen, 1991) provides support to

examine the beliefs, attitudes and self-identity (or perceptions) as these precede behavior and sense of behavioral control. This sense of behavioral control overlaps with Bandura's self-efficacy in his social cognitive theory (Ajzen, 1991; Bandura, 2001).

In order to create that population level behavior change, the social marketing approach uses six benchmarking principles (See Table 1.2). The major philosophy of social marketing is to create behavior change by first understanding fully the consumer experience, and the context in which they behave. The marketer needs to know the consumer's beliefs, attitudes, and habits, considering barriers, in order to develop marketing strategies that may motivate consumer behavior change. These factors would drive the development of the social marketing program design (Andreasen, 1995, 2002).

Table 1.1 Key features of social marketing

1. Consumer behavior is bottom line.
2. Programs must be cost-effective.
3. All strategies begin with the customer.
4. Interventions involve the Four P's: Product, Price, Place and Promotion.
5. Marketing research is essential to designing, pretesting and evaluating intervention programs.
6. Markets are carefully segmented.
7. Competition is always recognized.

(Adapted from Andreason, 1995)

Social marketing campaigns that use at least one of more or the social marketing principles have been more effective in reaching their audiences and creating a behavioral

change (J. E. Carins & Rundle-Thiele, 2014). Formative research is that necessary step of social marketing that will provide the insight on the consumer. Formative research (also called marketing or consumer research or audience research) can be done before the program is designed and executed, or during the program to monitor and inform the ongoing delivery of the program (Andreasen, 1995). Research done during the delivery of the program is usually more focused on process or outcomes evaluation while formative research prior to implementation informs design (J. E. Carins, Rundle-Thiele, & Fidock, 2016). The formative research referred to in this study will be what is done prior to the design and execution. A recent systematic review of 166 health interventions published from 2000-2015 showed that social marketing campaigns targeting obesity prevention, diabetes prevention, and sanitation always used formative research methods. In the areas of nutrition and physical activity, most of the interventions included formative research (Truong & Dang, 2017).

While formative research can include a range of methodology, systematic reviews of the social marketing literature have found that focus groups, interviews and surveys are the most popular (J. E. Carins et al., 2016; Truong & Dang, 2017). Overall, qualitative methods, interviews and focus groups, particularly focus groups, have been used most often with social marketing research. Observational studies using videography and ethnography are relatively new practices for social marketing formative research (J. Carins, 2017). Other types of qualitative research such as systematic literature reviews have been used in combination with focus groups and are increasingly popular (Truong & Dang, 2017).

Social marketing formative research literature indicates that most programs were planned with only one methodology used in the formative research, however more recently, the use of mixed methods has been increasing (J. E. Carins et al., 2016). One systematic review of social marketing interventions found an increase of the use of mixed methods from 11% during 1998-2002 to 15% in 2008-2012 (Truong, 2014). Using mixed methods in the social sciences has been disputed for over 50 years, according to Denzin (2010), for its validity and has multiple criticisms, for example, there is no standard definition of mixed methods research. Despite no standard definition, mixed methods is commonly understood to be the approach of using both quantitative and qualitative methods within a single project. It can also refer to mixing multiple quantitative methods or different qualitative methods, within the same project (J. E. Carins et al., 2016). Denzin (2010) argues that utilizing a combination of "empirical materials, perspectives and observers in a single study adds rigor breadth and depth" (Denzin, 2010). In the context of social marketing and gaining a deeper understanding of the consumer, mixed methods for formative research can uncover multiple directions for a social marketing intervention (J. E. Carins et al., 2016).

Researchers have recognized the low diet quality and high rates of obesity among children and adults in Mississippi. Most of the literature from Mississippi which document community perceptions of health problems were primarily focused regionally on the Delta (Gray, Byrd, Fountain, Rader, & Frugé, 2016; Johnson et al., 2008; McCabe-Sellers et al., 2007; Ndirangu et al., 2007; Smith et al., 1999; Tucker et al., 2005; Yadrick et al., 2001). One statewide study explored the acceptance of changing school environments to provide healthful beverages in vending machines (Brown &

Tammineni, 2009) while another statewide survey asked teachers their perspective on implementing nutrition competencies (Lambert, Monroe, & Wolff, 2010). Another study described focus groups results to be used in the planning of a nutrition intervention (Huye, Connell, Crook, Yadrick, & Zoellner, 2014). While these studies demonstrated the need and feasibility for health and nutrition intervention, there have not been any documentation of a statewide nutrition campaign.

Purpose

The purpose of this research is to provide an analysis of formative research to inform a nutrition education social marketing campaign for low resource Mississippi families. Using formative research, we will be able to position ourselves to create a campaign that is best suited for our Mississippi population. This study uses a systematic review of the literature to gather what best practices have worked in other states, a population-based phone survey to provide a broad understanding of the consumer in Mississippi, and focus groups to learn the context in which they behave. Different methodologies will answer different questions which together will provide a healthy eating social marketing strategy for Mississippi families. This study will answer the following research questions:

Overall research question: Based on the formative research, what should be the strategy for a 'healthy eating' social marketing campaign for low resource families in Mississippi?

AIM 1: To describe social marketing practices and outcomes related to promotion of healthy eating among low resource children and parents from 2007-2017

What were the past social marketing campaigns in the last 10 years?

What were their documented outcomes, social marketing and best practices?

AIM 2: To investigate personal and interpersonal factors influencing healthy eating among low resource parents/guardians in Mississippi.

What does healthy eating mean to Mississippi parents/guardians?

What are individual and interpersonal beliefs, attitudes, barriers, and facilitators towards healthy eating?

AIM 3: To investigate contextual factors for parents' perceptions on healthy eating

How do healthy eating perceptions and strategies among low resource parents compare across rural and urban settings in Mississippi? What are barriers and motivating factors that influence healthy eating for Mississippi parents?

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CHAPTER II

HEALTHY EATING SOCIAL MARKETING CAMPAIGNS IN THE US: A SYSTEMATIC REVIEW OF THE LITERATURE

Abstract

Low resource families face hunger and food insecurity, poor nutrition, lack of physical activity and higher than average rates of chronic disease. When social change needs to be made at a population level, the use of social marketing principles have been shown to be effective to change behavior. The purpose of this study is to review U.S. social marketing interventions targeting children and/or parents for their best practices, outcomes and social marketing principles. A systematic review of articles published since January 2007 was conducted, using PRISMA guidelines. Eight social marketing campaigns spanning 18 articles were reviewed. Six interventions documented positive behavioral changes. Best practices included use of community partnerships, internet and social media and 'kid-approved' recipes. One campaign, which reached over 125,000 monthly users, successfully empowered low resource mothers to incorporate fruits and vegetables into affordable meals. Social marketing can be effective to change nutrition related behavior. Addressing barriers to nutrition in the consumer perspective can make campaigns more effective. The findings underscore the need for SNAP-Ed social marketing campaigns and the publishing of their results especially in the US south where the need for behavior change is the highest.

Introduction

Low resource children and families face food insecurity (Hanson & Connor, 2014), poor nutrition (Andreyeva, Tripp, & Schwartz, 2015), lack of physical activity, obesity and higher than average rates of chronic disease (Beckles & Chou, 2013; Gillepsie & Hurvitz, 2013). The high prevalence of chronic disease and obesity is recognized as a major current public health crisis in the U.S. (Ogden, Carroll, Kit, & Flegal, 2014).

The Supplemental Nutrition Assistance Program (SNAP, formerly Food Stamps) provides financial assistance to low resource families with the goal to reduce hunger and improve nutrition, especially for those that are food insecure (Barnard & Katz, 2017). SNAP-Ed was reformulated and mandated to provide nutrition education that can focus on multi-level interventions using evidence-based education with an emphasis on individual, organizational, community and policy level approaches (USDA, 2017).

When social change needs to be made at a population level, the use of social marketing principles have been shown to be effective to change behavior (Carins & Rundle-Thiele, 2014; Kubacki, Rundle-Thiele, Lahtinen, & Parkinson, 2015; Truong, 2014). Systematic literature reviews of social marketing campaigns conducted around the world have documented effectiveness in changes in behavior towards healthy eating and physical activity (Kubacki et al., 2015).

The purpose of this review is to document the social marketing campaigns and outcomes that have been conducted in the last 10 years (2007-2017) targeting low resource parents and/or children age 12 and under, using a systematic review of the literature.

Methods

Data Collection

This systematic review followed established methods outlined by PRISMA (Moher, Liberati, Tetzlaff, & Altman, 2009).

In the winter/spring of 2017, a computer-based search was conducted to identify social marketing campaigns targeting low income children under age 12 or adults and published between January 2007 and May 2017. Five databases (Table 2.1) were searched using the combination of terms: (social marketing OR mass media campaign OR social media) AND (low income or low resource or SNAP) AND (fruit or vegetable or nutrition or physical activity or diet or healthy eating or food choice). This systematic search included original empirical studies published since January 2007. Articles were also manually searched by reviewing reference lists and searching the SNAP-Ed Connection website for published articles.

Table 2.1 Databases and articles retrieved in the initial search

Database	Number of articles retrieved
PubMed	152
Medline	111
HealthSource	87
PsychInfo	84
ERIC	8
Total	**442**

Studies must have met the following criteria: 1) peer-reviewed article or dissertation thesis, 2) conducted in the United States, 3) discussed some aspect of a social marketing campaign and its outcome (defined broadly), 4) targeted low resource children (age 12 and under) or parents/guardians of this age group, 5) focused on nutrition or healthy eating or physical activity and 6) based either in a state or local area.

Results were collated, duplicates removed and titles and abstracts reviewed. The first author reviewed the titles and abstracts; then the first and second author reviewed the full-text articles and discussed to agree on the final set of articles. Backward searching using reference lists and forward searching using author and study names were conducted to find other papers related to those studies uncovered in the search. Articles about the same project were grouped together and used to find all the details of the project.

Analysis

Full-text articles were examined and summarized for the target population, where the campaigns were located, and what type of topics covered. Further analysis was completed to identify study design, outcome measures, and reported results. Best practices were extracted from interventions with positive outcomes.

Results

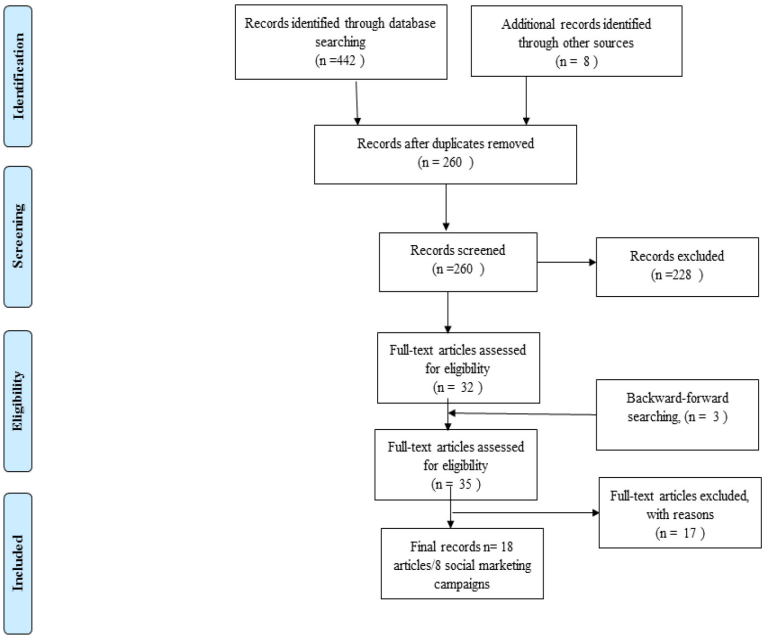

Figure 2.1 Flowchart of the literature search process adapted from the Preferred Reporting Items for Systematic Reviews and Meta-Analyses(PRISMA) diagram

A total of 442 articles were obtained from the database search and 8 from manual searching. After removal of duplicates, 260 remained for title/abstract review. Upon title/abstract review, 228 articles were excluded, leaving 32 articles. Three more articles were included from backward-forward searching to make a total of 35 articles that were assessed fully. Seventeen articles were excluded based on a more complete text assessment (Fig. 2.1). The articles in this study were 18, representing a total of eight social marketing campaign projects (Table 2.2).

Table 2.2 Social marketing campaigns for low resource children and parents

Name of campaign	Sources	Number
5-4-3-2-1 Go!	Evans, Christoffel, Necheles, Becker, & Snider, 2011; Evans, Necheles, Longjohn, & Christoffel, 2007	2
The Food Friends: Get Movin' with Mighty Moves	L. Bellows, Anderson, Gould, & Auld, 2008; L. Bellows, Davies, Anderson, Jennifer, & Kennedy, 2013; L. L. Bellows, 2008	3
The Food Friends: Making New Foods Fun for Kids	Johnson, Bellows, Beckstrom, & Anderson, 2007	1
Power Play!	A. Keihner et al., 2017; A. J. Keihner et al., 2011; Foerster & Gregson, 2011	3
Their Bodies Change, So should their Milk/ Pick a Better Snack	Blitstein et al., 2016	1
Project FIT	Alaimo et al., 2015; Eisenmann et al., 2011; Paek et al., 2014, 2015	4
Food Hero	Tobey et al., 2017; Tobey, Koenig, Brown, & Manore, 2016; Tobey & Manore, 2014	3
You wouldn't eat 22 packets of sugar, why are you drinking them?	Barragan et al., 2014	1

Target audiences

Of the 8 interventions, 7 targeted children in child care or school settings. Two focused on children ages 3-5 from Head Start Centers (Bellows, Davies, Anderson, Jennifer, & Kennedy, 2013; Johnson, Bellows, Beckstrom, & Anderson, 2007). Four campaigns included children in the age range of 7-10 or 2nd-5th grades (Alaimo et al., 2015; Blitstein et al., 2016; Keihner et al., 2017; Tobey et al., 2017) while one campaign broadly included children K-12 (Barragan et al., 2014). One intervention focused solely on parents of children ages 3-7 (W. D. Evans, Christoffel, Necheles, Becker, & Snider, 2011; W. D. Evans, Necheles, Longjohn, & Christoffel, 2007). Schools, where campaigns were implemented, were selected based on eligibility for government programs. Campaigns were implemented in the community where probability of

exposure would be high to low resource families (public transit, WIC or SNAP offices, for example). One study recruited based on residency in low income neighborhood and unemployment status (W. D. Evans et al., 2011, 2007).

All eight social marketing interventions engaged parents to some degree, either as a mediator between the children and the campaign or as a primary or secondary focus of the social marketing messages. One intervention focused on parents only (W. D. Evans et al., 2011, 2007). Five out of eight interventions described parents as a targeted audience (Alaimo et al., 2015; Barragan et al., 2014; Blitstein et al., 2016; W. D. Evans et al., 2011; Tobey, Koenig, Brown, & Manore, 2016). In total, three campaigns measured a healthy behavior change among parents (W. D. Evans et al., 2011; Paek et al., 2015; Tobey et al., 2017, 2016).

Setting

All campaigns were located in western or mid-western states; neither the southern nor east coast regions were represented. All but one intervention were school-based or utilized school partnerships. One campaign was implemented in multiple counties (Tobey et al., 2017) while another was implemented in four school districts (Blitstein et al., 2016). One focused on six low income city neighborhoods (W. D. Evans et al., 2011, 2007) while three focused on multiple schools in their respective one county or city school district (Barragan et al., 2014; Keihner et al., 2017; Paek et al., 2015). Two interventions were based in multiple Head Start Centers from rural and urban settings but did not specify counties or school districts (Bellows et al., 2013; Johnson et al., 2007). Four campaigns were located in primarily urban settings (Barragan et al., 2014; W. D. Evans et al., 2011; Keihner et al., 2017; Paek et al., 2015) while two interventions

compared both rural and urban settings (Bellows et al., 2013; Johnson et al., 2007). One campaign implemented activities statewide, therefore rural and urban was included (Tobey et al., 2017). One campaign study did not specify if their setting was rural or urban (Blitstein et al., 2016).

Behavioral Objective

Six interventions campaigned for healthier food consumption. In all six interventions, 'fruits and vegetables' were the main food group of behavioral focus; one campaign also included an increase of whole grains and beans (Paek et al., 2015). Two out of eight interventions tried to change how children internalized beliefs about foods and their willingness to try foods: one studied preschoolers who were exposed to new foods(Johnson et al., 2007) while the other intervention aimed to increase positive beliefs towards fruits and vegetable consumption among 2nd- 4th grade students and their mothers (Tobey et al., 2017). In total, four campaign interventions' behavioral objective included physical activity. Three interventions focused on increasing both healthier food consumption and physical activity (W. D. Evans et al., 2011; Keihner et al., 2017; Paek et al., 2015). Only one intervention out of eight focused solely on physical activity (Bellows et al., 2013) though this intervention was linked to another campaign which did focus on foods (Johnson et al., 2007).

Three interventions focused on healthier drinks: one focused on increasing consumption of low-fat/fat free milk (Blitstein et al., 2016), one on water (W. D. Evans et al., 2011), while the third focused on decreasing the consumption of sugar sweetened beverages (Barragan et al., 2014). Of these three interventions, two combined the

increase in healthier drink focus (fat-free/low fat milk and water) with healthier foods (Blitstein et al., 2016; W. D. Evans et al., 2011).

Study Design

The study design, population/setting, outcome measure and main result are summarized in Table 2.3. The campaigns are listed by study design: first, those that were randomized control, then those that use quasi experimental design and finally study designs with only pre-post assessment.

Three campaigns reported findings from a randomized control study design (Bellows et al., 2013; W. D. Evans et al., 2011; Keihner et al., 2017). All three of these campaigns focused on physical activity; two out of three focused on healthy food consumption as well (W. D. Evans et al., 2011; Keihner et al., 2017). All three campaigns found that intervention had some positive behavioral or physical impact for the treatment group. Both campaigns which included healthy food consumption showed an increase in consumption of vegetables and fruits in the intervention groups compared to the control groups. Physical activity was not increased in the campaign with pre-schoolers though gross motor skills were measurably increased. In the remaining campaigns, some physical activity results were found compared to the control groups: parents reported more vigorous exercise in one campaign but no behavioral outcomes for the children; in the other campaign, physical activity increased by five minutes among children in the intervention group (Table 2.3).

Table 2.3 Characteristics of social marketing interventions for nutrition and physical activity targeting children or parents

Campaign	Study Design	Population and Setting	Outcome Measure	Main Results
Randomized control trials				
5-4-3-2-1 GO! (W. D. Evans et al., 2011)	Randomized control trial/ participants were randomly assigned to receive 5-4-3-2-1 Go! counseling or no counseling with baseline face to face interviews and post-intervention telephone and face to face interviews. All respondents had the potential to be exposed to the 5-4-3-2-1 Go! Intervention after baseline. This was a one year campaign.	524 parents of children aged 3-7 from 6 neighborhoods; 252 participated in follow up. More than 50% were unemployed or working part-time	Consumption of 5 servings of fruits and vegetables, 4 servings of water, 3 servings of low fat dairy, 2 hours of screen time and 1 hour or more of physical activity	Parents exposed to the campaign were more likely to report consuming more servings of water; Parents who received counseling consumed more fruits and vegetables; parents reported more days of vigorous physical activity but no change in screen time. Behavioral outcomes for children were not confirmed in the study.

Table 2.3 (continued)

The Food Friends: Get Movin' with Mighty Moves(Bellows et al., 2013)	Randomized control trial/ preschools were randomly assigned to the 18 week program. Intervention was 15-20 minute lessons a day, 4 days a week. Materials were sent home for extra lessons at home; nutrition lessons with Food Friends; Mighty Moves campaign included graphics with Food Friends endorsing a physical activity movement	children 3-5 years old in 4 Head Start centers(98 intervention and 103 control) in Colorado	gross motor skills; physical activity(measured by average steps taken daily); BMI	Gross motor skills increased among the children in the intervention group; there was no effect on physical activity or BMI
The Power Play!(Keihner et al., 2017)	Randomized control trial/ intervention schools were assigned to 10 weeks classroom and after-school activities, taste tests; promotion included poster display; weekly nutrition materials for parents	3463 4th and 5th grade students(1571 intervention, 1892 control) from 44 public schools in San Diego County, CA	Self-reported fruits and vegetable consumption and physical activity	Fruit intake increased on average by .18 cups, and vegetables by .10 cups. Physical activity was reportedly higher than recommended in both intervention and control at baseline. Physical activity upon follow-up was 5 minutes longer in intervention group.

Table 2.3 (continued)

Campaign	Study Design	Population and Setting	Outcome Measure	Main Results
Quasi-experimental				
Their Bodies Change, So Should Their Milk; Pick a better snack (Blitstein et al., 2016)	Quasi-experimental design with 3 study conditions: a school-based nutrition education program (BASICS), with a school-based social marketing intervention (BASICS PLUS) and a no-treatment control group.	1037 children 3rd grade students(342 in BASICS, 343 in BASICS PLUS, 352 in comparison) from 33 elementary schools and their parents	Consumption of F/V; use of low fat/fat free milk	Children exposed to the social marketing increased intake of fruit(.17 cups) and vegetable(.13 cups) and 1.3 times more likely to consume low fat/fat-free milk
The Food Friends: Making New Foods Fun for Kids(Johnson et al., 2007)	Quasi-experimental design comparing children receiving nutrition education and social marketing reinforcing messages of tasting new foods compared to children not receiving social marketing; lessons and taste tests were provided for 12 weeks.	46 children 3-5 years old and their parents in 4 Head Start Centers(2 rural and 2 urban)	Trying new foods; Children were asked to taste 5 familiar foods and 4 new foods.	Children in the intervention with social marketing were less likely to refuse new foods and more likely to accept familiar foods than the control.

Table 2.3 (continued)

Project FIT(Paek et al., 2015)	Quasi-experimental design comparing 4 intervention and 2 control schools; Intervention schools were marketed Project FIT-branded materials such as coupons for purchasing vegetables, recipes and other promotional items. Project FIT corner stores, neighborhood clinics churches and community centers also provided materials. This was a two years intervention.	3rd-5th graders (664 in intervention and 195 in control schools); 286 parents were surveyed at baseline and 215 at follow-up.	physical activity and dietary behavior	Student awareness of the campaign was associated with increase in physical activity, whole bread, beans and fruit consumption. More parents were aware of the campaign and parents reported more fruits, vegetables and whole grains consumption at the time of the follow up survey.

Table 2.3 (continued)

Campaign	Study Design	Population and Setting	Outcome Measure	Main Results
Food Hero/Food Hero Kids(Tobey et al., 2017, 2016)	Quasi-experimental design; 1st phase-4 counties selected for 2 months campaign and one control county; 2nd phase- 22 out of 36 counties for 4 years(2012-2015) were selected for recipe assessment with kids. A recipe was rated 'kid-approved' if 70% reported liking the taste. 95% of recipes included fruits and vegetables.	-low income mothers -2nd- 4th graders	increase awareness in the campaign and positive beliefs about consuming fruits and vegetables; increased consumption of fruits and vegetables	Three beliefs increased among mothers after the campaign: mothers reported it was easier to get their family to eat fruit, they believed healthful food does not have to take a lot of time to prepare nor does healthful food have to be expensive. For the recipe assessments: students approved 34 of 94 recipes in 20,991 assessments. 79% of parents and caregivers reported that their children talked about learning about healthy eating in school; 69% parents reported that children asked for specific recipes and these parents reported making the campaign recipes.
Pre and Post test assessment				
You wouldn't eat 22 packets of sugar, why are you drinking them? (Barragan et al., 2014)	Pre and post assessment; intervention was materials intended to engage families in conversation; TV ads and metro mass transit poster placements; social media activities	Parents and school aged children; materials delivered to Los Angeles County district schools; 1041 street surveys were completed	knowledge on SSBs and future SSB consumption	More than 60% who saw the campaign reported they were likely or very likely to reduce daily consumption of sugar sweetened beverages.

Four campaign interventions used a quasi-experimental design. All four interventions focused on food (Blitstein et al., 2016; Johnson et al., 2007; Paek et al., 2015; Tobey et al., 2016), while one also included physical activity (Paek et al., 2015). All four intervention studies used intervention and control groups and were successful in their goals in documenting a positive change in behaviors. The study authors utilized the quasi-experimental design to prevent contamination of the campaign with the control groups.

The study which used a pre-post assessment design found that exposure to the campaign was related to an intention to change behaviors related to sugar sweetened beverages (Barragan et al., 2014). Though this campaign focused on parents in the focus groups, and there were materials distributed in schools, the evaluation was conducted with adults on the street who voluntarily took the survey.

Outcomes

A summary of outcomes and practices is provided in Table 2.4. Six out of eight interventions documented positive results in terms of nutrition and physical activity. Three had positive results among children (Blitstein et al., 2016; Johnson et al., 2007; Keihner et al., 2017), one among parents (W. D. Evans et al., 2011) and two demonstrated positive results for both parents and children (Paek et al., 2015; Tobey et al., 2017). The two interventions that did not have positive results for nutrition or physical activity did show other positive results. One intervention showed an increase of gross motor skills among children but this was not the outcome of interest for our current study (Bellows et al., 2013). One intervention did not provide an analysis of behavior change among the targeted audience of parents (Barragan et al., 2014).

Table 2.4 Summary of social marketing behavioral outcomes and program features

Campaign	Behavioral outcomes			Program Features		
	Food	Drink	Physical Activity	Funding	Best Practices and Strengths	Limitations, Challenges, Bias
Their Bodies Change, So should their Milk/ Pick a Better Snack (Blitstein, 2016)	++	++		SNAP-Ed	-added a social marketing focus on parents to an already established school based nutrition intervention -social marketing provided reach into the community at low cost -intervention engaged parents without requiring a time burden -3 tiered study design(control, and two treatment groups) -repeated exposure to messages	-Self-reported surveys may have social desirability or recall bias -Quasi experimental design does not use random assignment which may have biases to validity.
Project FIT (Paek et al., 2015)	++/+		++	SNAP-Ed and Blue Cross Blue Shield, MI	-two initiatives: one school based, one community based which were implemented at two different times -school and community based initiatives were integrated with social marketing. -corner stores -community partnerships -Website based marketing center -2 year implementation -both self-report and objective methods(plate consumption) measured dietary behavior change	-challenge of multiple behavioral goals and targeting multiple audiences -resource constraints -language barriers -self-report surveys may have risk for social desirability or recall bias -plate consumption observation was not based on standard meals

Table 2.4 (Continued)

Food Hero (Tobey et al., 2017, 2016)	+/++			SNAP-Ed	-strategic use of social media and website -included rural and urban counties -formative research with target audiences for consumer orientation -healthy recipes were a campaign product -two step implementation to engage first mothers/parents and then children -implemented since 2009 -community partnerships -recipes were rated "kid-approved"(Food Hero Kids Tasting Assessments) -tastings can be integrated in a current SNAP-Ed programs -recipes are accredited to meet USDA *Child Nutrition Programs* meal patterns.	-Requires quality planning -Consistent funding -Social marketing with an integrated social media team -Quasi experimental design does not use random assignment which may have biased validity.
Power Play! (Keihner et al., 2017	++		++	SNAP-Ed	Randomized control study This study is an extension of social marketing campaign running since 1995 Increasing fruits and vegetable consumption by 13% is meaningful for this population	-social desirability and recall; -physical activity data suggested over-reporting

Table 2.4 (Continued)

Campaign	Behavioral outcomes			Program Features		
	Food	Drink	Physical Activity	Funding	Best Practices and Strengths	Limitations, Challenges, Bias
5-4-3-2-1 Go! (W. D. Evans et al., 2011)	+	+	+		-community based -successful in changing multiple behaviors	-Bias due to attrition; -Self-reported behaviors
The Food Friends: Making New Foods Fun for Kids (Johnson et al., 2007)	++			USDA	Focused on one behavioral goal, and one target audience	-small study
The Food Friends: Get Movin' with Mighty Moves (Bellows et al., 2013)			--	USDA	Randomized control study design	-While this intervention did not increase physical activity, gross motor skills increased which may increase physical activity in the long term. -Children were already engaged with Food Friends, a different campaign but the same characters. Only children with parental consent were assessed for new gross motor skills. Physical activity was self-reported-may be subject to social desirability bias or recall bias.
Sugar Pack: You wouldn't eat 22 packets of sugar, why are you drinking them? (Barragan et al., 2014)		N/A			Focus groups were conducted among parents to gain insights on the consumer and make an effective campaign.	-Though survey participants indicated intentions not to use sugar sweetened beverages, the survey evaluation did not analyze how specifically parents changed their beliefs.

++ = positive outcome for children
++ = positive outcome for parents;
-- = non-positive outcome for children

Programmatic best practices

Short actionable messages were self-reported by authors as success practices for their campaign. Though healthy eating has many definitions and therefore could have many behavioral goals, authors described having focused and few behavioral goals as helpful to achieving them. Authors reported that their campaign needed to have enough planning and enough time to run for the target audience to have exposure to the message to be effective. One campaign's authors documented that sustained funding helped them continue to make an impact.

While these interventions were primarily set in schools, six interventions also promoted their campaign in the community. The types of community partnerships were varied. One campaign utilized corner stores as a major campaign component where the corner store was a partner that promoted the campaign and partnered in making more fresh fruits and vegetables more available (Paek et al., 2014). Other campaigns cited promotion with posters and brochures in grocery stores, clinics, churches and community centers.

In order to have children taste a variety of fruits and vegetable preparations, taste tests, were practices utilized by four campaigns. Three campaigns documented that they provided recipes to families (Keihner et al., 2017; Paek et al., 2015; Tobey et al., 2017); three used taste tests (Johnson et al., 2007; Keihner et al., 2017; Tobey et al., 2017) during the time of the social marketing campaign and intervention. Of these four interventions, one campaign provided a calendar to parents with tips and events that encouraged healthy eating and physical activity (Paek et al., 2015), one provided a printed cookbook (Keihner et al., 2017). Only two programs collected data from taste

tests to directly assess behavior or attitude change towards food consumption (Johnson et al., 2007; Tobey et al., 2017). One campaign distributed the data from these taste tests as 'recipe assessments,' labeling their recipes as 'kid-approved' when 70% of children liked the recipe (Tobey et al., 2017).

Social marketing practices

Cost effectiveness, a core principle of social marketing (Andreasen, 1995), was cited and documented by one intervention (Blitstein et al., 2016). This same campaign stated that was able to reach its audience with frequent nutrition messages; in addition, the campaign did not require a lot of feedback or effort on the part of the campaign target audiences. The use of the internet is an effective method to reach deeply to the target audience in a cost-effective manner. One intervention documented that in 2015, the campaign had over 125,000 unique users each month and had documented over 2.2 million page views (Tobey, 2016).

The use of formative research, another core component of social marketing, was documented by three campaigns. All interventions used focus groups with parents (Tobey, 2016; Bellows, 2008; Barragan, 2014).

Marketing Mix.

Promotion, one of the components of the 4 Ps marketing mix in social marketing (Andreasen, 1995), was covered by all social marketing interventions in this review. Campaign promotion and branding was implemented in diverse methods ranging from: one on one counseling to posters in public transportation, from broad media usage to social media. One intervention which had its target in the urban low income

neighborhood utilized one on one interviews. The two campaigns in the preschools used cartoon characters on posters just in the pre-school setting. Broad media usage included television and radio. One campaign was promoted in WIC and SNAP offices (Blitstein et al., 2016). One campaign cited that materials left with parents(water bottles, refrigerator magnets) intended to provide accessible daily exposure to remind parents about shopping and healthy behaviors and a website address (W. D. Evans et al., 2011). Incentives were distributed included jump ropes, water bottles, pedometers, grocery bags, and refrigerator magnets aside from calendars and recipes (Paek et al., 2015).

Two interventions documented use of the internet or social media technology to communicate the campaign messages (Paek et al., 2015; Tobey & Manore, 2014). Use of social media, including Twitter and Pinterest, was discussed by one campaign in a dedicated article for challenges and best practices. The campaign also intends to look into running on a mobile platform. The other campaign mentioned using a website in their program implementation and as part of their social marketing.

The other elements of the marketing mix: place, price, and product were not mentioned consistently or explicitly described among the campaign articles. Campaign authors for Project Fit stated that due to its complexity, they were not able to develop fully the product and place strategies from the 4 Ps marketing mix (Paek, 2015). Food Hero came the closest to the full use of the marketing mix. The authors for Food Hero mentioned that their recipes were a product of the campaign; their recipes were not only distributed but also assessed for quality by mothers and children. The internet is inferred as the 'place' in their marketing mix; one goal of their research was to analyze mothers who used the internet compared to those who do not (Tobey et al., 2016). Using this

data, they segmented their campaign to appeal to mothers who were online and those who were not (Tobey & Manore, 2014). Food Hero addressed 'price' by addressing attitudes towards the expense of vegetables and fruits; in addition, they created and promoted recipes rated by children and labeled them, 'kid-approved.' Food Hero authors stated that from the formative research they recognized that appealing to mothers with these strategies would help overcome barriers to including fruits and vegetables (Tobey et al., 2016).

Data collection

The campaign interventions were evaluated through some common as well as less frequently utilized data collection methods. Most campaigns were evaluated using survey assessments with the target audience, depending on self-report. Three campaigns measured and observed behavior differences: one through plate waste (Eisenmann et al., 2011; Paek et al., 2015) the others with step counting (Bellows et al., 2013) and food consumption observation (Johnson et al., 2007).

Discussion

This systematic review is important documentation of social marketing towards low resource families in the last ten years in the U.S. This review adds to growing evidence that social marketing campaigns can be successful. Examining past nutrition and physical activity social marketing campaigns can help build a better strategy for future campaigns.

The current review shows that while children were the audiences who were measured for behavioral change in most cases, campaign messages appealing to or

involving parents is a popular approach to impacting children's health. This is a new trend compared to a past systematic review that showed that healthy eating social marketing interventions were mostly focused on children (Carins & Rundle-Thiele, 2014). This implies that researchers are understanding that children are not always in control of their food consumption.

Since 2007, only eight interventions matched the criteria of targeting low income children and/or parents with social marketing of nutrition or physical activity. The findings from the eight interventions show social marketing campaigns can have a positive impact on fruit and vegetable consumption or on attitudes towards consuming this food group (Table 2.4). Of these, six had either SNAP-Ed (n=4) or other USDA funding (n=2). None of the eight interventions published in the literature were from the eastern U.S., or more importantly, none were from the south where health problems have been documented at the highest rates.

The four SNAP-Ed funded campaigns had positive behavioral outcomes and program features to be highly considered for future SNAP-Ed campaigns (Table 2.3). In addition to these practices described earlier, social marketing campaigns should also be scalable state-wide, cost-effective, and should reach a large population target audience.

Out of the four which had SNAP-Ed funding, the Power Play! in California has been implemented for the longest time, having been established about 1995. Long term behavior change is the ultimate goal for any nutrition intervention as well as a social marketing campaign. Power Play! has been able to document the effectiveness of their campaign with increased consumption of fruits and vegetables. Implemented in phases, this campaign first showed effectiveness in 1995 to increase fruits and vegetables

consumption (Keihner et al., 2017). This success was repeated even with the addition of physical activity, as described in this review (Keihner et al., 2017). Despite the long term campaign and its success in children reporting increased consumption of fruits and vegetables, the reported increase in consumption for the Power Play! campaign was due mostly to an increase in fruit consumption rather than vegetables. The campaign's reported increase of about one-third cup of fruits and vegetables was about comparable to previous school-based interventions, most of which did not have social marketing components (C. E. Evans, Christian, Cleghorn, Greenwood, & Cade, 2012). This suggests that, based on their documented measures, the Power Play! campaign may not be cost-effective as it is not evident if the campaign provided its own impact.

The campaign in Iowa (Their bodies change…/Pick a better snack) demonstrated a social marketing campaign can be successful and cost-effective when integrated to an already successful nutrition education intervention. The strength of the study is that it had two treatment groups (the nutrition education group + the social marketing) compared to the nutrition education treatment group in addition to a control group. This design, though not randomized control, showed that the social marketing had its own effect on healthy food consumption. While the additional effort for a social marketing campaign was cost-efficient, the effect of the social marketing compared to the nutrition education intervention alone was moderate for fruits and vegetables and had higher impact for low fat/fat-free milk consumption. As described by the authors, increasing low fat milk consumption had been successful in past state-wide campaigns. The success of Iowa's campaign may be due to the consistent reinforcement and exposure of the messages (Blitstein et al., 2016).

Project FIT was implemented for two years in selected areas of one city, Grand Rapids, MI. While this campaign had positive results for both parents and children, the authors also stated that it was complex with multiple behavioral goals(physical activity and healthy food goals) and challenging to put enough focus on both sets of target audiences (Paek et al., 2015). This project also had deep community partnerships with support from corner stores and community leaders through its community initiative. This project had elements that were unique and can be considered for future strategies; however, its complex design and behavioral objectives may not be ideal for scaling to state-wide.

The Food Hero campaign was the campaign in this review that included most of the social marketing principles: formative research and ongoing evaluation, audience segmentation, a clear behavioral objective and a full marketing mix. The most unique feature of the Food Hero campaign are the 'kid-approved' recipes which were formulated to include fruits and vegetables. While several other campaigns distributed recipes, only Food Hero campaign extensively tested the recipes in schools and labeled them as 'kid-approved.' In addition, a campaign strategy was to include multiple forms of fruits and vegetables in recipes (fresh/frozen/canned), in order to promote a variety of affordable fruits and vegetables. Both of these strategies seemed to have excited the children and the parents, resulting in 2.2 million views of the website in 2015 (Tobey et al., 2016). The campaign seemed to be able to reach their audience in a cost-effective manner, through the internet and in schools.

Based on this review, Food Hero has the most components to model for a future state-wide SNAP-Ed social marketing campaign. Its focus and appeal to the consumer

extends to a sustainable campaign with a deep reach to the population. The campaign reach was easily measured using internet analytic software. Also, this campaign implementation seems to be replicable and easy to scale statewide.

Strengths

The strength of this review was in the number of databases used in the search. By restricting the age group of the children and the type of adult to parents only, heterogeneity in studies were reduced. The review builds on past systematic literature reviews which call for more discussion on interventions on children and parents (Carins & Rundle-Thiele, 2014). In addition, review methods included the use of two reviewers to determine inclusions and exclusions. Manual searching of websites and reference lists of articles provides strength to the comprehensiveness of this review.

Limitations

During the search, the authors did find published abstracts of poster presentations of statewide campaigns in Louisiana and in Michigan but, obviously, without further published documentation, these interventions did not match review criteria. The dearth of published social marketing campaigns reduces the range of outcomes and best practices to select from for future strategy. As the currently published social marketing campaigns were limited geographically, they may not be representative of what would work in other areas, the south.

Summary

Based on this review of the literature, eight social marketing nutrition or physical activity interventions have been conducted in the US, since 2007, which could match

SNAP-Ed's interest in low resource families. Children were most commonly the primary target audience though parents as a target audience was an emerging pattern. After thorough examination of the evidence of behavioral outcomes and best practices, only one, Food Hero's campaign, stands out to be replicated by other states.

Implications for Research and Practice

SNAP-Ed campaigns and the publishing of their results should be encouraged especially in the southern U.S. where the need for behavior change is the highest. Those with common goals and similar populations could learn from each other, especially on making new social marketing campaigns more effective in behavior change and cost-efficient.

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CHAPTER III

PERCEPTIONS, BELIEFS, PRACTICES AND SELF-EFFICACY TOWARDS HEALTHY EATING: A PHONE SURVEY OF LOW INCOME MISSISSIPPI FAMILIES

Abstract

The purpose of this study was to explore the perceptions, beliefs, practices and self-efficacy towards healthy eating among low income Mississippi families.

A statewide phone survey was conducted with Mississippi residents aged 18 and older who provided or prepared food for children in their household. Survey participants were residents who were income eligible or current SNAP recipients. Participants were asked what healthy eating means, about attitudes and practices regarding shopping and meal planning. "Self-efficacy" was measured by the participant's report of confidence in a particular skill related to healthy eating. Chi Square tests were conducted to investigate the differences between demographic groups. A total of 206 surveys of households with children were analyzed. Seventy nine percent (n=163) of participants were currently receiving SNAP benefits. Healthy eating was perceived as 'balanced meals' and 'fruits and vegetables.' Over 90% of participants had positive attitudes and beliefs towards 'healthy eating.' About 60% agreed that cost was a barrier. Women valued providing tasty meals to their families. A social marketing message with this population can include USDA core messages while emphasizing tasty and affordable meals.

Introduction

The Supplemental Nutrition Assistance Program (SNAP) is the largest of U.S. Department of Agriculture's (USDA) nutrition assistance programs and aims to provide relief from food insecurity and improve the nutritional status of low-income individuals(USDA, 2017). Food insecurity is a major concern for low resource adults and families with children in Mississippi. About 20% of Mississippi households are estimated to be food insecure and 7.3% are deemed to have very low food security, significantly higher than the national average rates of food insecurity (12.7% and 5.0% respectively)(Coleman-Jensen, Rabbitt, Gregory, & Singh, A., 2016). Much of Mississippi's population endures food insecurity, poverty as well as high rates of obesity, diabetes, cardiovascular disease and other chronic conditions.

'Healthy eating,' as defined by U.S. Dietary Guidelines, is "healthy dietary patterns over a life time, emphasizing vegetables and fruits, planning fresh meals cooked at home, and offering variety (U.S. Department of Health and Human Services & U.S. Department of Agriculture, 2015). National data and literature suggest that while most Americans are not meeting the recommendations for healthy eating, those who are food insecure are more vulnerable to lower dietary quality (Andreyeva, Tripp, & Schwartz, 2015; Krebs-Smith, Guenther, Subar, Kirkpatrick, & Dodd, 2010).

SNAP-Ed is the nutrition promotion and obesity prevention component of SNAP. The purpose of the SNAP-Ed Program is to assist eligible families to make food choices consistent with the USDA guidelines. SNAP-Ed encourages individuals making food choices for their families to learn about nutrition and plan meals. Among many nutrition education strategies, SNAP-Ed supports social marketing as an effective method to guide

SNAP recipients and low resource families to eating healthy on a budget (USDA, 2017). Social marketing can reach a large target population with a relatively low budget. Social marketing is deemed successful when large populations voluntarily change a behavior that will be beneficial to them (Andreasen, 1995). Using client-focused research, social marketing can learn values that motivate and real or perceived barriers to change. Marketing methods then use this information to develop and refine a message that offers an exchange, or alternate behavior, that provides an optimal outcome to the target groups (Cairns & Stead, 2009). The critical point of social marketing is to understand what exchange will provide the optimal outcome (Andreasen, 1995).

Grounded in theory, social marketing campaigns reflect a multi-disciplinary approach. As described above, the social marketer's primary focus is to change behavior by understanding the consumer's context. To understand where to focus behavior, social marketing uses primarily the Transtheoretical Model which states that people change behavior over time in a series of stages (Andreasen, 1995). To be effective within the stages, other theories are also referenced. Azjen's Theory of Planned Behavior (Ajzen, 1991) provides support to examine the beliefs, attitudes and self-identity (or perceptions) as these precede behavior and sense of behavioral control. This sense of behavioral control overlaps with Bandura's self-efficacy in his social cognitive theory (Ajzen, 1991; Bandura, 2001).

In order to know how to target its social marketing and best serve Mississippi's residents, the SNAP-Ed program in Mississippi conducted a telephone survey. The

purpose of this study was to investigate individual and interpersonal factors influencing healthy eating among low resource parents/guardians in Mississippi.

Most SNAP recipients and food insecure families in Mississippi are households with children headed by single females (Coleman-Jensen et al., 2016). A unique characteristic of Mississippi is the proportion of grandparents, in particular, grandmothers, also taking care of children (U.S. Census Bureau, 2015a). There is growing evidence that low income men are participating in making food decisions and preparing foods (Harnack, Story, Martinson, Neumark-Sztainer, & Stang, 1998) as well as more couples receiving SNAP (U.S. Census Bureau, 2015b). All possible caretakers of children were included in this exploratory study.

Methods

A statewide telephone survey was conducted in 2014 with persons aged 18 and older who provide or prepare food in their household. Survey participants were limited resource Mississippi residents who could speak English. Participants were required to be income eligible for SNAP or current SNAP recipients. Both cellular and landline telephone numbers were obtained and randomly dialed. Each telephone number was dialed a maximum of eight times.

Survey

The development of the survey question items was guided by both the theory of planned behavior (Armitage & Conner, 1999) and the social cognitive theory (Bandura, 2001).

Individual and interpersonal factors were conceptualized as values, attitudes, beliefs, barriers, and practices/behaviors regarding healthy eating. These items were measured on Likert scales. The survey included an open-ended question, "What does healthy eating mean to you?"

Value/importance was measured in the following 9 items: towards spending less money, providing healthy food, providing tasty food, providing a meal that is easy to prepare, providing a meal quickly, knowing how to cook, knowing how to plan meals and grocery shop and offering variety or excitement. These value items towards healthy eating were measured from 'Not at all important' to 'Very important.'

Beliefs about healthy eating were measured in 5 items. Statements included: "I think of myself as a healthy eater," "I think of myself as someone who is concerned with healthy eating," "I think I provide enough fruits and vegetables for my family," "I think cooking meals at home is important for my family's health," "I think of myself as a good cook." These belief items were measured from "Strongly Disagree" to "Strongly Agree."

Barriers were 5 items defined as accessibility of fruits and vegetables, cost, finding time to cook, knowing how to cook, and perceptions of the family towards home cooked meals. These items were measured on a 4 point scale of agreement from "Strongly Disagree" to "Strongly Agree."

Practices/behaviors were 6 items. Behaviors included: planning meals ahead of time, comparing prices before you shop, shopping with a grocery list, cooking foods without adding salt, using the nutrition facts label to make food choices, and shopping at

the local farmer's market. Each item was measured on a 5 point frequency scale: 'never', 'rarely', 'sometimes,' 'usually' and 'almost always'.

"Self-efficacy" on a particular skill was measured by the participant's report of confidence on a 4 point scale from not at all confident to very confident. The items included: confidence to prepare mostly home cooked meals, eat enough fruits and vegetables, plan meals ahead of time, shop with a grocery list based on planned meals, learn more about healthy foods, eat more healthy foods.

Analysis

Attitudes, beliefs and barriers were analyzed using univariate frequencies. Upon inspection, the results did not have enough variation across the scales. No further comparisons of the demographic groups were conducted for these items for practical meaning.

Behaviors/practices and self-efficacy was compared by demographic groups. The 4 point Likert-type scale was collapsed to 2 points for both categories of questions. For example, 'confident' included respondents who reported 'very confident' or 'confident' while 'not confident' included respondents who were 'a little confident' or 'not at all confident.' The proportion of each demographic group which reported having 'confidence' or practicing a behavior was compared using Chi Square. P-values less than .10 were reported. This analysis was conducted in IBM SPSS 22.

Responses to the open-ended question were classified in categories based on commonality of phrases.

Results

A total of 411 surveys were completed with 122 refusals for a 77% completion rate. For this current study, only those who reported children living in the house were selected for further analysis (n=206). Seventy nine percent (n=163) of households with children were currently receiving SNAP benefits at the time of the survey. Most survey participants were female (82.5%, n=170) and African American (68.9%, n=142) and under the age of 44 (74.7%, n=154). Most of the survey respondents reported being either single, divorced or widowed (66.1%, n=122). The demographics of the study participants and characteristics of their households are presented in Table 3.1.

Table 3.1 Demographic characteristics of respondents and their households

Individual demographics	n(%)	*Individual demographics(cont.)*	n(%)
Gender		Employment	
Female	170(82.5)	Employed for Wages	91(44.2)
Male	36(17.5)	Self-employed	9(4.4)
Ethnicity		Out of Work for More than 1 Year	13(6.3)
Non-Hispanic	197(95.6)	Out of Work for Less than 1 Year	13(6.3)
Hispanic	6(2.9)	Homemaker	31(15.0)
Refused	3(1.5)	A Student	13(6.3)
Race		Retired	9(4.4)
African American	142(68.9)	Unable to Work	23(11.2)
White	52(25.2)	Choose not to Work	2(1.0)
Other	10(5)	Refused	2(1.0)
Refused	2(1.0)		
Age			
18-24	26(12.6)		
25-34	74(35.9)		
35-44	54(26.2)		
45-54	23(11.2)	*Household Demographics*	n(%)
55+	29(14.1)	Number of People in Household	
Marital Status		2 people	16(7.8)
Married	57(27.7)	3 people	57(27.7)
Unmarried couple	12(5.8)	4 people	61(29.6)
Single	89(43.2)	5 people	39(18.9)
Divorced	23(11.2)	6 people	20(9.7)
Widowed	10(4.9)	7 or more	13(6.3)
Separated	14(6.8)		
Refused	1(.5)	Number of Children Under 18	
Highest Level of Education		1	72(35.0)
Grades 1-8	3(1.5)	2	76(36.9)
Grades 9-11	38(18.4)	3	38(18.4)
Grade 12 or GED	81(39.3)	4	13(6.3)
Some college	47(22.8)	5	7(3.4)
College graduate(college 4 years or more	16(7.8)		
Some graduate studies	2(1.0)	SNAP benefits	
Masters, Doctorate, Professional degree	2(1.0)	Yes	163(79.1)
Refused	1(.5)	No	43(20.9)

Table 3.2 shows the responses to the statements about values in regards to healthy eating and preparing home cooked meals. The majority of participants (> 80.1%) stated that knowing how to cook and providing healthy meals was 'very important.' Knowing how to plan meals and spending less money was very important for a majority of

participants (> 70%). Providing a meal quickly or easy to prepare were reported to be 'very important' by less than 40% of the study population.

Table 3.2 What is important when preparing home cooked meals

Statement	Very Important n (%)	Somewhat Important n (%)	Slightly Important n (%)	Not at all Important n (%)	Not sure n (%)
Knowing how to cook	173 (84.0)	26 (12.6)	3 (1.5)	3 (1.5)	1 (.5)
Providing healthy food	165 (80.1)	40 (9.4)	0 (0.0)	1 (.5)	0 (0.0)
Knowing how to plan meals and grocery shop	162 (78.6)	38 (18.4)	5 (2.4)	1 (.5)	0 (0.0)
Spending less money	150 (72.8)	32 (15.5)	13 (6.3)	10 (4.9)	1 (.5)
Providing tasty food	130 (63.1)	63 (31.1)	8 (3.9)	3 (1.5)	1 (.5)
Getting the whole family involved	122 (59.2)	43 (20.9)	18 (8.7)	22 (10.7)	1 (.5)
Offering variety or excitement	116 (56.3)	57 (27.7)	24 (11.7)	7 (3.4)	2 (1.0)
Providing a meal that is easy to prepare	80 (38.8)	71 (31.5)	37 (18.0)	16 (7.8)	2 (1.0)
Providing a meal quickly	61 (29.6)	72 (35.0)	45 (21.8)	28 (13.6)	0 (0.0)

Table 3.3 shows the responses to the statements about attitudes and beliefs towards eating healthy. Overall, most participants strongly agreed or agreed on these statements. Participants strongly agreed or agreed that eating healthy makes them feel good about themselves. Participants strongly agreed or agreed that vegetables and fruits help to maintain a healthy weight and can improve health. Almost all participants agreed or strongly agreed that cooking meals at home was important for health; almost all participants agreed or strongly agreed that they were good cooks. About 94% agreed or strongly agreed that they were concerned with healthy eating however, most of these were not in strong agreement. About 27% of participants agreed or strongly agreed that eating healthy meant eating boring food while about 16% strongly agreed or agreed that fruits and vegetables were not very tasty.

Table 3.3 Attitudes and beliefs towards eating healthy

Statement	Strongly Agree n (%)	Agree n (%)	Disagree n (%)	Strongly Disagree n (%)	Not Sure n (%)	Refuse n (%)
Eating healthy makes me feel good about myself	120 (58.3)	85 (41.3)	0 (0.0)	0 (0.0)	1 (.5)	0 (0.0)
Eating fruits and vegetables helps to maintain a healthy weight	116 (56.3)	86 (41.7)	1 (.5)	0 (0.0)	3 (1.5)	0 (0.0)
Eating more fruits and vegetables can improve my health	111 (53.9)	87 (42.2)	5 (2.4)	0 (0.0)	3 (1.5)	0 (0.0)
I think cooking meals at home is important for my health	101 (49.0)	103 (50.0)	2 (1.0)	0 (0.0)	0 (0.0)	0 (0.0)
I think of myself as a good cook	101 (49.0)	95 (46.1)	8 (3.9)	0 (0.0)	2 (1.0)	0 (0.0)
I think of myself as someone who is concerned with healthy eating	69 (33.5)	126 (61.2)	9(4.4)	0(0.0)	1 (.5)	1 (.5)
Eating healthy means eating boring food	9 (4.4)	48 (23.3)	113 (54.9)	32 (15.5)	3 (1.5)	1 (.5)
Fruits and vegetables are not very tasty	3 (1.5)	32 (15.5)	125 (60.7)	44 (21.4)	2 (1.0)	0 (0.0)

Table 3.4 shows the responses to barriers to healthy eating. Most participants (>90%) strongly agreed or agreed with the statements that their family likes the foods cooked and that the participant knows how to cook many different vegetables. There was a little more variation in responses to the statements about cost, availability and time.

About 35% agreed or strongly agreed that there was a lack of quality fruits and vegetables, almost 60% agreed that it is expensive to eat healthy and about 18% agreed or strongly agreed that time was an issue in preparing home cooked meals.

Table 3.4 Barriers to healthy eating

Statement	Strongly Agree n (%)	Agree n (%)	Disagree n (%)	Strongly Disagree n (%)	Not Sure n (%)	Refuse n (%)
My family likes the foods I cook	92(44.7)	107(51.9)	6(2.9)	1(.5)	0 (0.0)	0 (0.0)
I know how to cook many different vegetables	72 (35.0)	116 (56.3)	83(17)	1 (.5)	0 (0.0)	0 (0.0)
It is expensive to eat healthy	46 (22.3)	75 (36.4)	67 (32.5)	17 (8.3)	1 (.5)	0 (0.0)
It is hard to find quality fruits and vegetables in my community	25(12.1)	48(23.3)	111(53.9)	20(9.7)	2(1.0)	0 (0.0)
It is hard to find the time to prepare healthy, home-cooked meals	12 (5.8)	58 (12.2)	97 (47.1)	37 (18.0)	2 (1.0)	0 (0.0)

Importance regarding healthy meals was analyzed by demographic groups, as shown in Table 3.5. While how to cook was very important to most women and men, women were more likely to report ‘how to cook’ as very important. Spending less money was stated more often as ‘very important’ among participants 45 and older. Providing tasty food was more often stated as ‘very important’ by women than by men.

Table 3.5 Importance regarding healthy meals among specific demographic groups, households with children

Proportion who responded item was **very important** when providing meals	ALL survey participants with children (N=206) % (n)	SNAP (n=163)	Not SNAP enrolled (n=43)	Participants who were single/separated/ widowed (n=136)	Participants in a married or committed relationship (n=69)	Female (n=170)	Male (n=36)	Under 45 (n=154)	45 or older (n=52)
How to cook	84% (n=173)	**85.5% (n=141)**	**74.4% (n=32) p<.10 χ^2=3.693, df=1**	80.1% (n=109)	91.3% (n=63)	**86.5% (n=147)**	**72.2% (n=26) p<.05 χ^2=4.483, df=1**	82.5% (n=127)	88.5% (n=46)
Providing healthy food	80.1% (n=165)	79.8% (n=130)	81.4% (n=35)	77.9% (n=106)	84.1% (n=58)	81.8% (n=139)	72.2% (n=26)	81.2% (n=125)	76.9% (n=40)
How to plan meal	78.8% (n=162)	80.4% (n=131)	72.1% (n=31)	77.9% (n=106)	79.7% (n=55)	79.4% (n=135)	75.0% (n=27)	77.3% (n=119)	82.7% (n=43)

Table 3.5 (Continued)

Proportion who responded item was **very important** when providing meals	ALL survey participants with children (N=206) % (n)	SNAP (n=163)	Not SNAP enrolled (n=43)	Participants who were single/separated/ widowed (n=136)	Participants in a married or committed relationship (n=69)	Female (n=170)	Male (n=36)	Under 45 (n=154)	45 or older (n=52)
Spending less money	72.8% (n=150)	71.2% (n=116)	79.1% (n=34)	75% (n=102)	68% (n=47)	72.9% (n=124)	72.2% (n=26)	**68.8% (n=106)**	**84.6% (n=44) p<.05 χ^2=4.893**
Providing tasty food	63.1% (n=130)	63.8% (n=104)	60.5% (n=26)	67.6% (n=92)	53.6% (n=37)	**68.8% (n=117)**	**36.1% (n=13) p<.0001 χ^2=13.655, df=1**	61.7% (n=95)	67.3% (n=35)
Offer variety	56.3% (n=116)	56.4% (n=92)	55.8% (n=24)	55.1% (n=75)	58.0% (n=40)	**59.4% (n=101)**	**41.7% (n=15) p<.10 χ^2=3.803**	53.2% (n=82)	65.4% (n=34)
Easy to prepare	38.8% (n=80)	39.9% (n=65)	34.9% (n=15)	39.7% (n=54)	37.7% (n=26)	40.0% (n=68)	33.3% (n=12)	35.7% (n=55)	48.1% (n=25)
Provide meal quickly	29.6% (n=61)	28.8% (n=47)	32.6% (n=14)	25.5% (n=36)	36.25 (n=25)	30% (n=51)	27.8% (n=10)	28.6% (n=44)	32.7% (n=17)

Table 3.6 shows a comparison of planning, shopping and food choice behavior among different demographics. In general, the population practices price strategies most often. More than half usually or almost always plan meals and about half use a grocery list. About 30% cook foods with less sodium but this is significantly a more popular practice among those 45 and older. Using the nutrition facts label is practiced by about 33% of the participants; non-SNAP enrolled participants (44%) reported using the nutrition facts slightly more than SNAP-enrolled.

Table 3.7 shows the responses to statements regarding self-efficacy. Overall, almost the whole sample rated themselves confident in their ability to practice healthy eating strategies while on a budget. Fewer men were confident that they could eat enough vegetables and fruits than women; younger participants were more likely to be confident that they could plan their meals compared to older participants. Married participants were more likely to report their confidence in using a grocery list.

Table 3.6 Comparison of shopping and meal planning behaviors among specific demographics, within households with children(N=206)

	ALL survey participants (N=206)	SNAP (n=163)	Not SNAP enrolled (n=43)	Participants who were single/separated/ widowed (n=136)	Participants in a married or committed relationship (n=69)	Female (n=170)	Male (n=36)	Under 45 (n=154)	45 or older (n=52)
Meals at home									
Eat food prepared at home 5-7 times a week	74.3% (n=153)	74.8% (n=122)	72.1% (n=31)	73.5% (n=100)	76.8% (n=53)	75.3% (n=128)	69.4% (n=25)	72.1% (n=111)	80.8% (n=42)
Eat food prepared at home 6-7 times a week	55.3% (n=114)	57.1% (n=93)	48.8% (n=21)	51.5% (n=70)	63.8% (n=44)	55.3% (n=94)	55.6% (n=20)	51.3% (n=79)	67.3% (n=35)
Almost Always or Usually do the following									
Compare prices of different food brands	66.5% (n=137)	66.3% (n=108)	67.4% (n=29)	66.9% (n=91)	66.7% (n=46)	68.8% (n=117)	55.6% (n=20)	65.6% (n=101)	69.2% (n=36)
Plan meals ahead	52.9% (n=109)	54% (n=88)	48.8% (n=21)	52.2% (n=71)	55.1% (n=38)	55.3% (n=94)	41.7% (n=15)	52.6% (n=81)	53.8% (n=28)
Use grocery list	48.5% (n=100)	46.6% (n=76)	55.8% (n=24)	47.1% (n=64)	52.2% (n=36)	48.2% (n=82)	50.0% (n=18)	51.3% (n=79)	40.4% (n=21)

Table 3.6 (Continued)

	ALL survey participants (N=206)	SNAP (n=163)	Not SNAP enrolled (n=43)	Participants who were single/separated/widowed (n=136)	Participants in a married or committed relationship (n=69)	Female (n=170)	Male (n=36)	Under 45 (n=154)	45 or older (n=52)
Cook Foods w/o salt	31.1% (n=64)	31.3% (n=51)	30.2% (n=13)	28.7% (n=39)	36.2% (n=25)	31.2% (n=53)	30.6% (n=11)	**27.3% (n=42)**	**42.3% (n=22) p<.05 χ^2=4.103, df=1**
Use Nutrition Facts Label	33.5% (n=69)	**30.7% (n=50)**	**44.2% (n=19) p<.10 χ^2=2.788, df=1**	32.4% (n=25)	36.2% (n=44)	32.9% (n=56)	36.1% (n=13)	33.8% (n=52)	32.7% (n=17)
Shop at Farmer's Market	17% (n=35)	19.0% (n=31)	9.3% (n=4)	16.9% (n=23)	17.4% (n=12)	16.5% (n=28)	19.4% (n=7)	17.5% (n=27)	15.4% (n=8)

Table 3.7 Self-efficacy for healthy eating practices among specific demographic groups, within households with children(N=206)

	ALL survey participants with children (N=206)	SNAP (n=163)	Not SNAP enrolled (n=43)	Participants who were single/separated/widowed (n=136)	Participants in a married or committed relationship (n=69)	Female (n=170)	Male (n=36)	Under 45 (n=154)	45 or older (n=52)
Very Confident or confident									
Prepare mostly home cooked meals	97.6% (n-201)	96.9% (n=158)	100% (n=43)	96.3% (n=131)	100% (n=69)	97.6% (n=166)	97.2% (n=35)	98.1% (n=150)	96.2% (n=50)
Eat more healthy	91.3% (n=188)	92% (n=150)	88.4% (n=38)	90.4% (n=123)	92.8% (n=64)	92.4% (n=157)	86.1% (n=31)	92.2% (n=142)	88.5% (n=46)
Shop with grocery list	81.6% (n=168)	81% (n=132)	83.7% (n=36)	77.9% (n=106)	**89.9% (n=62) (p<.05) χ^2=8.762, df=2**	81.2% (n=138)	83.3% (n=30)	83.1% (n=128)	76.9% (n=40)
Learn what healthy foods are	89.8% (n-185)	90.2 (n=147)	88.4% (n=38)	88.2% (n=120)	92.8% (n=64)	91.2% (n=155)	83.3.% (n=30)	90.3% (n=139)	88.5% (n=46)
Eat enough F&V	87.9% (n=181)	89.6% (n=146)	81.4% (n=35)	89.0% (n=121)	85.5% (n=59)	**90% (n=153)**	**77.8% (n=28) (p<.05) χ^2=4.162, df=1**	88.3% (n=136)	86.5% (n=45)
Plan meals	79.6% (n=164)	79.8% (n=130)	79.1% (n=34)	77.9% (n=106)	84.1% (n=58)	78.2%% (n=133)	86.1% (n=31)	**82.5% (n=127)**	**71.2% (n=37) (p<.10) χ^2=3.066 df=1**

Open ended question: When asked 'what does healthy eating mean to you,' participants offered short phrases of information. The phrases seemed to be divided into two main areas: those that indicated a view on as what you can do to eat healthy, while many phrases indicated a message of what you need to stop doing in order to be healthy. The most frequent phrases, overall, were related to "balanced meals" and "vegetables and fruits"; both of these phrases would be in a view of what you can do or action-oriented. Those who mentioned balanced meals provided details that each food group should be in each meal; they said 'well rounded' diet, 'food groups.' Phrases included with the fruits and vegetables category were 'salads', 'greens,' or 'green vegetables.' Other phrases that were related to action were: 'eating lean meats', 'drinking healthy drinks (milk, water or orange juice) and consuming 'enough vitamins.' Participants also mentioned consistent meals (not eating late, 3 meals/day), appropriate portion sizing and cooking methods (baking, boiling). Many participants mentioned that healthy eating meant 'wellness'; for example, participants mentioned 'feeling better', 'living longer', 'staying in shape', 'better immune system.' The phrases related to messages of 'no' were: reducing sugar, no sweets, no junk food or fast food, limiting calories and sodium.

Discussion

To date, there has been much study in Mississippi about the need for better nutrition and the high rate of disease. This is the only large population study in Mississippi investigating perceptions, values, beliefs, attitudes, practices and self-efficacy towards healthy eating among low resource parents/guardians living with children. Overall, an over whelming majority of Mississippi respondents rated healthy meals as

very important and had positive beliefs and attitudes towards what healthy eating means to them.

The major finding is that most limited resource families in Mississippi believe that healthy eating is very important and they have accurate perceptions of what healthy eating means. Table 3.3 shows that most participants agreed (61.2%) or strongly agreed (33.5%) that they were concerned with healthy eating. Also, most participants (95%) agreed or strongly agreed that healthy eating was good for health and weight maintenance, they feel good when they eat healthy, and that fruits and vegetables are good for their health—about 55% strongly agreed with those three statements. The open-ended responses demonstrated that the population has knowledge about the range of meanings behind 'healthy eating.' The open ended responses confirmed that 'balanced meals' and 'fruits and vegetables' were the most common perceptions of healthy eating; in addition, the meaning of healthy eating ranged from limiting portion size to calorie control to lower sugar and fat intake. This study adds to the growing body of literature on perceptions of healthy eating but is the first of its kind to confirm that Mississippi families have a knowledge of 'healthy eating.' A 2009 study with low resource women in the South showed a perception that diet was not related to health (Dammann & Smith, 2009). Many studies show that low income mothers and families have knowledge of nutrition but have barriers in sorting out the information (Acheampong & Haldeman, 2013; Antin & Hunt, 2012; Atkinson, Billing, Desmond, Gold, & Tournas-Hardt, 2007; Gellar, Schrader, & Nansel, 2007; Jones et al., 2014)

Based on this current study, Mississippi parents believe eating healthy is expensive (Table 3.2, Table 3.4) and use cost effective strategies such as price

comparisons while doing their shopping. They rated cost as a more important factor than time or availability of fruits and vegetables (Table 3.4). Cost is a common barrier for women, men and older caretakers (Griffith, Cornish, McKissic, & Dean, 2016; Higgins & Murray, 2010; Kicklighter et al., 2007). This current study confirms other reports that low income women want to regularly consume fruits and vegetables but find the habit to be expensive (Dammann & Smith, 2009; Achempong 2012). On the other hand, almost 100% of participants in this current study reported having the confidence to eat healthy, eat enough fruits and vegetables, prepare mostly home cooked meals, and other tasks (Table 3.7).

Perception and self-efficacy does not always translate to practice. While participants were concerned with healthy eating and believed they have the confidence to eat more healthy, many (over 60%) reported to not use nutrition facts labels nor do they practice planning meals ahead (47%). Being able to read and interpret the nutrition labels requires a minimal knowledge of nutrition. Planning meals may help with increasing the variety and taste of home cooked meals as well as save money. Future research using focus groups should be conducted to clarify what further barriers prevent limited resource families to plan their meals.

Per the dietary guidelines, healthy eating is more likely to happen with prepared meals at home. Overall, participants were interested in healthy eating, preparing food at home, and providing healthy meals. A large proportion of participants highly valued providing a healthy meal or knowing how to cook (Table 3.2). Only 40% agreed it was very important for meals to be easy to prepare meals or take very little time to prepare (30%)(Table 3.5). While low resource families eat out for many reasons, including

convenience and lack of time (Antin & Hunt, 2012; Jabs et al., 2007), 74% of participants in this study reported eating dinner 5-7 times at home during the week and about 57% reported eating dinner 6-7 times at home (Table 3.6). This is the first large population study in Mississippi to document how often low resource families eat at home.

Overall, there were few statistical differences in the responses between the demographic groups. (Tables 3.5, 3.6, 3.7). Both SNAP enrolled and SNAP eligible populations had high levels of self-efficacy; they were confident that they could find enough fruits and vegetables and were confident they could eat more healthy (Table 3.7). There were greater differences between the responses between men and women. Women participants were significantly more likely to say that cooking and taste were very important when providing meals (Table 3.5). Male respondents were more likely to say that they were *not* confident that they could eat enough fruits and vegetables. Older providers in this study were more likely than younger parents to report that they considered cost when choosing foods (Table 3.5).

Implications for Social Marketing in Mississippi

When considering strategy for a social marketing campaign, the targeted consumer must be well understood. Two decisions can be made based on these findings: the target audience and the stage of change for focus. Based on these findings, the target audience can be justified to be women as they were the prominent respondent. Women are known to be the primary recipient of government assistance. The insights gained from this study confirms that Mississippi caretakers do know a lot about healthy eating and have positive attitudes and beliefs. Respondents also had a high level of self-efficacy. What is holding back their achievement of a consistent lifestyle must be the

barriers, which would be primarily the expense or cost of food, based on these findings. Therefore, a social marketing campaign on healthy eating in Mississippi can focus messages targeting its audience in the 'contemplation' stage. In this stage, the social marketing campaign would emphasize the benefits first to encourage the audience and also address the barriers (Andreasen, 1995). Further development of the campaign would be enhanced with additional study on what alternatives can help motivate this population to overcome cost of healthy foods. For example, further information is needed to understand what are the social pressures involved in overcoming barriers.

Strengths

This is the only large population state-wide study in Mississippi that shows how residents caring for children think about healthy eating. This is also the first study to document low resource families' perceptions of healthy eating and that their perceptions of healthy eating match the dietary guidelines.

Limitations

The scales and questions used were adapted from other validated instruments (Armitage & Conner, 1999); however, some respondents may have provided responses that were socially desirable. This bias may have been controlled with the study design being an anonymous phone survey. Since home cooking is valued as part of healthy eating, the concept of 'home prepared food' may need more definition and exploration. As this phone survey called the public who self-identified as low income, there may be an underreporting of those who were SNAP enrolled. This survey called both cell and landline numbers to get as many participants as possible. As those who agree to be

interviewed may be different from those who do not respond, findings may be biased due to non-response bias.

Future directions

A nutrition education intervention on healthy eating could be effective in Mississippi if addressed in a culturally specific manner. To build on these findings, focus groups should be conducted to provide more contextual data and depth.

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CHAPTER IV

PERCEPTIONS OF HEALTHY EATING AMONG LOW RESOURCE MOTHERS IN MISSISSIPPI: A QUALITATIVE STUDY

Abstract

Mississippi has one of the highest rates of obesity in the nation, along with chronic disease, food insecurity and poverty. In order to understand the perceptions, motivations and challenges to healthy eating, 18 focus groups were conducted around the state with low resource mothers and guardians of young children. Participants were women ages 18-65, who were mothers, grandmothers and aunts for children under the age of 13. Mothers/guardians described that 'healthy eating' can have a broad range of meaning from including particular food groups to controlling portion sizes, sugar, fried foods, salt, and eating regular meals. Participants stated that they were concerned about their children's health but 'healthy eating' was expensive and took too much time. They were most concerned that their children would eat amidst their busy schedules. A social marketing campaign in Mississippi should promote 'healthy eating' strategies that focus on the family.

Introduction

Mississippi has one of the highest rates of obesity in the nation (Robert Wood Johnson Foundation, 2017), along with chronic disease, food insecurity (Coleman-Jensen, Rabbitt, Gregory, & Singh, A., 2016) and poverty (U.S. Census Bureau, 2016). Data from the Behavioral Risk Factor Surveillance Survey indicate poor diet quality and low rates of physical activity in Mississippi (Mississippi State Department of Health, 2016).

Most of the literature from Mississippi which document community perceptions of health problems were primarily focused regionally on the Delta (Gray, Byrd, Fountain, Rader, & Frugé, 2016; Johnson et al., 2008; McCabe-Sellers et al., 2007; Ndirangu et al., 2007; Smith et al., 1999; Tucker et al., 2005; Yadrick et al., 2001). One statewide study explored the acceptance of changing school environments to provide healthful beverages in vending machines (Brown & Tammineni, 2009) while another statewide survey asked teachers their perspective on implementing nutrition competencies (Lambert, Monroe, & Wolff, 2010). While these studies demonstrated the need and feasibility for health and nutrition intervention, there have not been any documentation of a statewide nutrition campaign.

A social marketing campaign is a nutrition education intervention aimed to change a common behavior of a large population. The social marketing framework dictates that research is conducted on the target audience to thoroughly understand their context in order to propose what behavior can be changed (Andreasen, 1995). The framework is grounded in multiple theories including the Transtheoretical Model, the

Health Belief Model, and the Theory of Planned Behavior which all pose that beliefs are important precursors to behavior (Andreasen, 1995). The role of the social marketer would be to understand the benefits and challenges that the target audience contemplates towards 'healthy eating.'

These focus groups were part of an overall study to understand low resource women's perspectives and context as related to food consumption. The first aim of the focus groups was to elicit perceptions, beliefs relating to healthy diet and nutrition, motivations, barriers and current strategies. The second aim was to explore what resources participants use to acquire knowledge about food and nutrition. In this study, only the first aim is discussed.

Methods

Moderator's guide

Discussion questions included food shopping, health related knowledge and attitudes, preferences of diet and activity patterns, and family life. Development of the moderator guide was based on the Health Belief Model (HBM). The HBM indicates that the perceived *importance* of healthy eating, including how participants describe a healthy diet and how they view risks related to eating habits, may influence health-related behavior. Furthermore, the HBM indicates that perceived benefits and barriers may moderate behaviors (Andreasen, 1995). Thus, questions were developed to investigate perceptions of healthy eating, current strategies and motivations for and perceived barriers.

Recruitment

Mississippi was divided into 4 regions based on the Mississippi State University Extension Service regional divisions. From each region, counties were examined based on the size of the population and number of SNAP participants enrolled. Counties were selected based on rural or urban status.

Respondents from selected counties were randomly recruited via telephone from a list of Mississippi residents who currently receive or previously received SNAP benefits in Mississippi. Recruitment from a particular county was satisfied when 20 people agreed to attend. The 2013 Rural Urban Continuum Codes (RUCC) from the USDA were collected to assess the distribution of focus groups from each type of rural or urban status. Codes of 1-3 are metro while 4-7 are urban but non-metro, while 8-9 are defined as completely rural. Each subdivision within rural or urban is dependent on population size and proximity to a metro area. At least 2 focus groups were scheduled in each of RUCC 1-7 (For more detail on RUCC, see USDA documentation at https://www.ers.usda.gov/data-products/rural-urban-continuum-codes/ Last accessed August 25, 2017).

Participants

Individuals were eligible if they were over 18, raising a child under 13 years of age and was the main person responsible for obtaining and preparing food in their home.

Data collection

Focus groups were 90 minutes held in the evenings in a public location, such as a hotel or community center. At the end of the focus groups, attendees were asked to fill

out a demographic survey. Participants were provided $25 for their time and any expenses associated with attending the focus groups. Focus groups were videotaped or audio recorded.

Analysis

Verbatim transcripts of the focus groups were analyzed using NVIVO 11 Pro by the first author. Methods were based on coding established in grounded theory(Saldana, 2015). All transcripts were reviewed multiple times; the first time to assess the content, a second time to assess codes and construct a code book. Each transcript was reviewed two more times to make sure themes were assessed thoroughly and content was understood. Codes were then reviewed and organized into themes. These themes were categorized by perceptions, strategies, challenges and motivations. Sub-themes were noted if they particularly resonated with one region or rural/urban status. Perceptions of healthy eating as stated by focus group participants were compared to the USDA Dietary Guidelines.

Results

From August and September 2016, 18 focus groups were conducted in 12 locations across the state(Table 4.1). For this research study, one focus group was deemed ineligible for analysis as only two participants had attended. Seventeen focus groups were included in the analysis.

Table 4.1 Focus group characteristics and locations

RUCC code	Meaning of RUCC code	City/Town location of focus group	Number of participants	County	Region
2	Metro(250,000-1 million)	Jackson-1	4	Hinds	SW
2	Metro (250,000 to 1 million)	Jackson-2	5	Hinds	SW
6	Non-metro pop up to 19,999; adjacent to a metro area	Brookhaven	6	Lincoln	SW
5	Non-metro pop 20,000 or more; not adjacent to a metro area	Natchez	9	Adams	SW
7	Non-metro pop up to 19,999;not adjacent to a metro area	Corinth	9	Alcorn	NE
1	Metro 1 million population or more	Southaven-1	5	DeSoto	NW
1	Metro 1 million population or more	Southaven-2	8	DeSoto	NW
7	Non-metro pop up to 19,999;not adjacent to a metro area	Clarksdale	9	Coahoma	NW
6	Non-metro pop up to 19,999; adjacent to a metro area	Greenwood	10	Leflore	NW
6	Non-metro pop up to 19,999; adjacent to a metro area	Greenville	10	Washington	NW
5	Non-metro pop 20,000 or more; not adjacent to a metro area	Meridian	9	Lauderdale	SE
4	Non-metro pop 20,000 or more; adjacent to a metro area	Laurel-1	10	Jones	SE

Table 4.1 (Continued)

4	Non-metro pop 20,000 or more; adjacent to a metro area	Laurel-2	9	Jones	SE
3	Metro population of less than 250,000	Hattiesburg-1	4	Forrest	SE
3	Metro population of less than 250,000	Hattiesburg-2	6	Forrest	SE
2	Metro area 250,000 to 1 million population	Gulfport-1	4	Harrison	SE
2	Metro area 250,000 to 1 million population	Gulfport-2	7	Harrison	SE

Table 4.2 presents the demographic characteristics of the participants of the focus groups. A total of 124 women were interviewed in the remaining 17 focus groups; there was an average of 6.8 participants per focus group (range 4-10). Of the 124 women who participated, 102 were ages 18-45 (82%) and 103 (83%) were African American. Fifty-two (42%) had a high school degree or less, 39 (32%) had some technical or college education, while the remaining 32 (25%) had graduated from higher education. Most participants were receiving SNAP (88%), Free or reduced school meals (48%) or WIC (26%). Most of the participants had 1-3 children under the age of 13 in their household. While most were raising their own children, some were raising grandchildren, or nieces and nephews.

Table 4.2 Demographic characteristics of focus group participants

Characteristic	Number (%)
Age	
18-25	7 (5.6)
25-35	50(40.3)
36-45	45(36.3)
46-55	12(9.7)
56-64	7(5.6)
65+	1(.8)
Missing	2(1.6)
Education level	
Junior high or some high school	13(10.5)
GED or high school diploma	39(31.5)
Technical or vocational program	4(3.2)
Some college	35(28.2)
Community college/associate degree	18(14.5)
College/university	13(10.5)
Graduate or professional education	1(.8)
Missing	1(.8)
Receiving Public Assistance*	
SNAP	109(87.9)
Medicaid or CHIP	100(80.6)
Free or reduced school meals	59(47.6)
WIC	32(25.8)
HeadStart	13(10.5)
Low income energy Assistance program	12(9.7)
Summer Feeding Program	9(7.3)
TANF	4(3.2)
Number of children in household	
0	1(0.8)
1	40(32.3)
2	49(39.5)
3	24(19.4)
4	6(4.8)
5	2(1.6)
6	1(.8)
Missing	1(.8)

*Participants could choose more than one; percentages do not add to 100.

Perceptions of healthy eating

When asked what healthy eating means to them, participants discussed particular food groups and specific food items. Fruits and vegetables were most commonly defined as part of healthy eating in all focus groups, rural, non-metro, and urban. Fruits were described as fresh fruit while vegetables were often associated as part of salads or steamed vegetables.

> *I love fruits and vegetables…because they [are] more healthy for you. All that grease is not good. -Greenville*
>
> *…vegetables of all kinds—Meridian*
>
> *Vegetables…and with fish for the brain and carrots for the eyes.—Southaven*
>
> *We are trying not to eat meat…eat more vegetables; we use like the whole grain pasta and then we use like the cauliflower, carrots, broccoli, squash.—Gulfport*

Whole grains were mentioned in terms of 'wheat breads', 'whole grain pasta' and 'oatmeal'. Milk and yogurt were mentioned in the discussions as a staple purchase and sometimes mentioned in definitions of 'healthy eating'. Milk was also mentioned in terms of foods that WIC provides. Participants understood that WIC gave out full-fat milk to younger kids and to children who needed more calories. Water was more commonly discussed as part of completing a healthy meal than other drinks. Healthy protein was most often described as chicken and fish. Favorite foods such as chicken, fish and pork were described as healthy if baked or grilled. Cooking foods with less oil, such as baking or grilling rather than frying was often cited as healthy. Participants also provided examples of meal combinations that they thought were their healthiest.

Baked fish, broccoli and rice or chicken salad, lemon pepper. I put lemon pepper on my broiled chicken and fish. Baked fish and broccoli, brown rice. –Clarksdale

Most people don't think meat is healthy but you can also try to bake it instead of having it fried… we can put in the oven. Like grilled fish.–Greenville

Water, mustard greens, fresh green beans, broccoli apples, bananas, straight black coffee, lentils, tomatoes, grilled chicken, grilled fish, grapefruit, garlic, okra and turkey. When I think about eating healthy, these are the things that I would eat. –Greenville

'Healthy eating' was also described in terms of restriction of the foods that are known for being unhealthy, for example 'healthy eating' was commonly defined as 'less' or 'not' fried foods' or 'less soda.'

Healthy eating means…give up fried chicken.–Clarksdale

No sodas…limit the junk food…like chips… –Greenwood

I think of cutting back on certain things…candy…bread...—Southaven

Cost is a major perception of healthy eating. For the majority of participants, healthy food was considered more expensive than unhealthy food. Meats, fruits and vegetables were named as the food groups that were most expensive. Brand name foods which are more expensive were defined as healthier than cheaper brands.

I drew a big plate with a little apple because they're so expensive…you can eat more with unhealthy food than you can with healthy food.–Corinth

I want to lose weight but I just can't afford to…I'm just being honest…let's say I'm looking at cold cuts… I want to get this four or five dollar pack of ham that's healthier but I can only get the two-dollar brand.—Southaven

Many focus group participants discussed that processed foods were not healthy and they were wary of additives, preservatives and hormones. Fresh vegetables from

gardens and meat that was freshly hunted or fished was deemed healthy. Organic foods were 'free of pesticides' therefore healthy. Traditional southern soul food cooked at home or even desserts that were cooked at home, without preservatives, were described as healthy.

> *Deer meat…it's a leaner meat… it doesn't have all the processed chemicals…–Meridian*
>
> *Fresh food instead of processed. –Southaven*
>
> *Organic foods…free of pesticides. –Greenville*
>
> *I just have 'fresh' because I think that's the most healthy. Like garden food. Garden food is really healthy for you. Because it really bothers me when I pick up a bag of butter beans and read the ingredients. When I was in the Delta…we picked them, washed them and cooked them. –Jackson*

'Healthy eating' evoked images of a healthy family and a healthy heart for some participants. The phrase was equated to personal health and eating for a better life and was considered a lifestyle.

> *Healthy eating means… a beating heart, longevity and life.–Greenwood*
>
> *Eating healthy for better life. –Meridian*

A few participants volunteered, without probing, that 'healthy eating' is paired with exercise and losing weight. These participants were primarily from urban settings.

> *I would think healthy eating, you got to exercise too. –Jackson*
>
> *...you know it is just like she said, you can [eat] all the healthy you want but if you are not working it off, all this plays a part with everything. It's not just if you eat healthy you are going to be little. I might eat nothing but green beans and I'm this size.–Jackson*
>
> *Walking and dieting…trying to get the pounds off. –Hattiesburg*

Strategies for eating healthier

Cooking at home

Many women advised that the healthier option is to cook at home and stop eating at restaurants. One participant mentioned that preparing even her desserts at home, controls and reduces the preservatives found in store bought foods.

> *Prepare food at home…it's better…I always find something to complain about when I go out to eat.—Meridian*
>
> *Stop going to restaurants because there is nothing healthy there… you'll be getting fried chicken or shrimp… it's hard to eat healthy in a restaurant…– Clarksdale*

Cooking at home was associated with eating fresh, less processed foods. Choosing fresh vegetables from gardens and buying frozen vegetables were ways to access healthy foods in a less expensive way. Participants did not think store-bought canned foods were as healthy as frozen or fresh as they were concerned about salt content. While not a lot of participants had their own gardens, fresh vegetables from gardens were accessible through friends and family members. When asked about farmers' markets, participants agreed that they sometimes go to farmer's markets and other fresh fruits and vegetable stands. Participants discussed that they could taste the difference with fresh foods though many regretted that they did not have time or the skills for maintaining a garden.

The most common suggestion to eating healthier was incorporating more vegetables into the meals. Many participants talked about pairing a protein, usually a 'grilled chicken' with 'salad.' Several women suggested methods that worked for them such as using the crockpot or sneaking in vegetables.

…buying frozen foods are not always good for you but they are cheaper... I have moved to using frozen vegetables vs canned vegetables because of the sodium. It amazed me, how much sodium is in just a can of vegetables.–Corinth

Eating healthy doesn't have to be organic…I went from canned to frozen and then there are some things I do fresh when it's in season…it's better than canned because of all the salt…–Southaven

You don't have younger people doing it, but the older people they grow their gardens. Like my mom and them, they grow their garden, tomatoes and whatever, they give it to the neighborhood.
–Clarksdale

I have a friend that I go to… a lady up the street… every year, she gives me three sacks of greens. Collard, turnip and mustard. I pick 'em, blanch 'em and put 'em in my freezer.
–Jackson

… This doctor, he was telling me to cook my food in a crockpot. At night, if you want this to eat, he showed me how to do a roast. Don't put nothing in it but, carrots, potatoes, bell pepper, and onion…It was fine…I do it at night now so that in the morning time, I already have my food ready. So by the time my grandkids get home from school, we can eat.–Greenwood

A lot of people say 'why do you cook green beans in the crockpot?' Well, I slow cook them and smoke that bone and French onion in them and slow cook. And they taste a little bit like collard greens.—Laurel

Cook…sneak in the greens…they'll never know it's there. –Clarksdale

Meat is the center of the meal. Without probing questions, participants voluntarily discussed ways to prepare meats: from choosing lean meats, eating less meat, or eating freshly caught or hunted. The most popular suggestion was to choose meat that is 'not fried,' such as 'grilled,' 'baked,' 'smoked,' or other method.

...the 'grilled meat' because when I think 'healthy food', I think of anything that's not fried. Grilled chicken, grilled meat, I mean even barbecue…–Corinth

Baking meats. Cutting out the red meats. We don't eat a lot of ground beef. We use ground turkey, ham. Boiling like peas and stuff.—Greenwood

I don't use ground beef unless I'm doing a cookout…You know it's more than just my family, because we have acid reflux. So I try my best to buys more lean meat than fatty meat…–Laurel

They discussed that in their family traditions, pork and hamhocks were used to flavor vegetables. As these foods are known to be fatty, one participant suggested an alternative strategy was to use leaner, smoked meats for flavor. Participants also talked about using seasoning alternatives to salt in particular: "Mrs. Dash," lemon pepper, creole, garlic, herbs.

> *It may be a southern thing… most of us when we cook our vegetables… we load them up with hamhocks and pork meat. All that kind of stuff... I love it. But I have found out that you could actually do smoked turkey and different things. Still get good flavor and it's healthier. –Meridian*

> *My oldest daughter she is real picky and I am fixing to try something different so I baked some fish and I seasoned it with creole seasoning and pepper; put some onions and bell peppers and she ate it. She don't even eat stuff like that. – Clarksdale*

Mindfulness and portion control

Focus group participants realized that they needed to limit or even eliminate some items in their overall diet. Others perceived that eliminating a food item was not realistic or even a priority, however they thought it was important to control food consumption and to stop when full. There was discussion in almost every focus group about controlling sugar intake especially that from soda and Kool-aid. Drink alternatives was water in most focus groups.

Healthy eating? ...portion control. –Greenwood

I gave up lovely fried foods, donuts and salt…One of the things I learned with that, I still eat that hamhock… I just do it in moderation. … I also don't eat pork everyday like I used to. –Meridian

…when you say 'eating healthy,' it's such a broad subject. You can go anywhere from 0 to 100, but then I thought: monitoring what you eat and portion control as opposed to specific things to eat.—Natchez

I try to stress to my girls that when you are full, stop eating. ..it's not what you eat, it's how much… –Hattiesburg

Kool-Aid. I have an 11 and 12 year old. I've been trying for six months to wean them off of it. So I have been buying a lot of water. Lots and lots of water.—Greenwood

I'm trying to do without sweet sodas... just completely break it. –Laurel

…instead of sodas and stuff… I don't buy them period and if they want something to drink, I get those little sugar frees. I try to incorporate more water.–Southaven

Shopping strategies

Low resource mothers and guardians recited many strategies of how they find good quality healthy foods while shopping. They shopped around at different stores for sales, they used coupons, generic brands and are familiar with 'in season'. Frozen vegetables were perceived as less expensive and have extended shelf life. A few participants talked about the willingness to pay membership fee at bulk discount stores, where available, in order to get the benefit of buying items, such as snacks, much cheaper. It was noted that not many of these stores were available around the state. One participant from an urban setting recalled that SNAP had advertised coupons to encourage purchasing produce at farmer's markets. Bottled water, defined as healthy, staple purchase, but not a large expense according to most focus group participants. Most women recalled that usually bottled water can be found on sale.

They run some good deals on seasonal fruit that are usually in good shape. We bought some really good fruit lately from there, it's been really good. –Corinth

Because I shop all the time at [name Store], they send me coupons in the mail and I get free vegetables …free broccoli…-Greenville

I used to buy nothing but name brand… I've gotten away from that …– Greenwood

We go to [bulk store name] for snacks…they're a lot cheaper and you can stock up…
–Corinth

Challenges to eating healthy

Taste & habit

A major theme for participants was that healthy eating or cooking healthy may mean leaving out salt, sugar and fat, therefore the taste. In general, participants were looking for ways to season foods with enough taste. Some parents admitted that their children ate healthier than they did as the parents did not have the same taste or habit for vegetables. On the other hand, many parents had the habit for sodas and fried foods. Reducing the consumption of these particular items was difficult as they felt they craved them.

I don't like a bland diet.—Gulfport

If I could find some seasoning that could keep that same flavor it wouldn't matter as much without salt. Have to keep that taste. I cook with a little sugar too.— Hattiesburg

They use to say pork is bad for you. When I was in the hospital, they served me pork 3 times a week. But it was the lean pork. It was a loin and you don't have all the fat. It was ok. It just didn't have any taste.
–Greenwood

Oh yes, [cokes] are my weakness…-Southaven

I love [coke]…I got to have two or three a day. –Greenville

I can get a 12 pack of pop and it will only last me 3 days.–Greenwood

Cost

As stated earlier, 'healthy eating' was perceived to be more expensive. When deciding what to get from a restaurant, a participant in Brookhaven simply stated, "A burger does not cost more than a salad. You can get a burger for 99 cents and a salad is like $5." Participants also had to make choices at the store for less expensive products. Cost does not mean just price. Participants discussed how they shop for quality as well as price. For example, fruits and vegetables do not have shelf life; spending limited money on items that do not last, was hard to justify. On the other hand, participants were willing to spend on water and snacks, which can be found on sale for large quantities and last a long time.

I get bologna or hotdogs because they [cost] like 89 or 99 cents. You can get that but as far as meat products, no, too high.–Clarksdale

When you buy the vegetables in the store, they don't last as long at home. Fruits and all, they start going bad. –Jackson

You can catch it on sale…30 packs…Kroger's always has water on sale…–Greenville

No, it's not expensive…I get four cases[of water] for ten dollars…–Meridian

I get food stamps so I don't pay cash for my water but it takes about $75 of it. –Gulfport

Convenience and time

Cooking, in general, and preparing foods in a healthier manner takes time. For example, 'baking' is more time consuming while 'frying' was defined as quicker and more convenient. Participants talked about their busy lifestyles and that time and convenience were big factors in what they prepared or bought. A busy lifestyle leads to

being tired at the end of the day. Participants talked about being tired of cooking some days and needing something that can be warmed in the microwave. They acknowledged convenient food choices were unhealthier.

Because of their busy lifestyle, participants kept snacks on hand or bought snacks from convenient stores while on the go. They discussed having to buy snacks for the children for school snacks, for after school, or for sports; snacks ranged from 'hotpockets,' 'sandwiches,' 'lunchables with juice and chips' to 'crackers' or 'cereal'. Some thought these snacks were unhealthy, while others thought they were necessary as they were concerned that the snacks needed to be satisfying for the children until dinner time or during a sports activity. They also felt that snacks were necessary after school as the school-provided lunches were not satisfying their children.

> *Junk food is more convenient than cooking a meal sometimes.–Hattiesburg*
>
> *I'm a snack person. I won't sit down and eat a whole meal, but I'll snack…But like the only good thing about that is we are really active. The snacking came out of us being so busy. –Jackson*
>
> *I think it's a generation thing… When I was growing up, we didn't have snacks. Our parents raised it and they cooked it. That's the difference now, they don't cook.*
> *–Meridian*

Feeding the family

The participants in this study have the responsibility of feeding their family. They were concerned about their children and having to make decisions based on what their family would eat. There was a range of attitudes of how parents fed their children from, 'they will eat what I make or go hungry,' to 'I need to make sure they get their nutrition.' Participants discussed the challenge of providing healthy meals to their family because

they perceived their children would not eat healthy. Some stated they had success with their children eating vegetables voluntarily; still, it was common for participants to state that they believed their children would not eat vegetables, in particular. Some parents admitted that they themselves were and remain picky eaters.

> *It's more or less what they will eat. Most children don't want to eat healthy. They will eat whatever you cooked to a certain degree. When you have young children you have to play on their appetites [rather than] for what you would normally eat yourself. I want to get a healthy balance of everything in... I have to trick my children into eating healthy.*
> *–Brookhaven*

> *It don't do me no good to cook me some greens or pinto beans and black eyed peas because my kids is not going to eat it. –Greenwood*

> *Actually, I cook a variety of foods, but mainly the meal goes on what the kids will eat and that's something I deal with a lot because I have a child that's kind of medicated in the day time. When he comes off that medication, he's hungry and if I don't fix something that he's going to eat…I need to make sure he's getting his nutrition.*
> *–Hattiesburg*

> *You don't want to buy something the kids ain't going to eat… you want to buy something that the babies are going to eat... –Jackson*

> *We got all kids under the age of 13, if you going to cook a hot meal every night like that, they gonna look like, Joe playing with his beans. You know the roll under the table. I know but if you got this child knowing what he need is nutrition and he want something, you gotta think: your child gonna starve, well he aint going to eat that he just go to bed. No. I'm going to find you something that you going to eat.*
> *–Jackson*

> *But it is hard to change the children. They don't like vegetables and stuff like that…*
> *–Southaven*

Motivations for healthy eating

In general, participants associated 'healthy eating' with losing weight. Participants were motivated by possible weight reduction for themselves and in some cases for their child or other family member who was overweight.

Trying to lose weight was a precursor for improving their children's future health. Many participants from different focus groups discussed that their motivation for healthy eating was reducing the future health risks for the children. They discussed that they try modeling healthy lifestyle for children while they are young so the children get used to it. Many were trying to prevent the children from indulging into an unhealthy lifestyle by either starting healthy habits even when the children were young or trying to train them as they grew older. They admitted that being consistent with healthy eating, especially with vegetables, was difficult as they, as parents, did not have the same habits when they were young.

> *I love being a mom and preparing things for my son. I like him to be healthy cause if he eats healthy I know that he's going to be healthy so just starting him out early on healthy. He didn't get a lot of candy when he was younger, you know, when he started eating so if I start him out early, I feel like I have zero fight .—Corinth*
>
> *I started feeding them vegetables when they were babies and they watch what I eat… and then they'll want some… –Meridian*
>
> *I try to give my children vegetables that I wouldn't eat when I was younger. I introduce them and they eat now sometimes. Asparagus, carrots and beets. I wouldn't eat no beets, but they will. –Greenwood*
>
> *Who is going to be here for them? I want them to break the cycle as far as being a diabetic. Blood pressure problems and all of that…I have three boys, but the way you eat and bring them high blood pressure there's a lot more that they're at risk for because they are African American and they're males. There's a difference there. –Hattiesburg*

While many participants associate healthy eating with reducing weight and risk for disease, healthy eating was also discussed as a solution for the health problems they currently needed to manage. Most participants discussed that they have chronic health problems and their doctor's orders were to change their diet. Others had genetic conditions that they were managing daily. Some discussed that healthy eating was on

their minds because their children had special conditions such as autism, Attention Deficit Hyperactivity Disorder or food allergies. One participant was motivated to change her lifestyle in order to reduce her reliance on medications.

> *I am trying to stay away from pop/soda and junk food. They like my best friend and it's hard for me to quit. I'm trying to do it, because I know I need to stop because of my health.*
> *–Greenwood*

> *I've been drinking water now because I have frequent urinary tract infections. I have lupus…so I've been having to drink water and straight cranberry juice with nothing in it. Just straight and that's expensive.*
> *—Gulfport*

> *I went to the doctor and six months ago… borderline high blood pressure. He asked me if I wanted to be on blood pressure medicine and I said, "Do I have a choice?" He said, "Yes". If I could do something different within 30 days, and then come back. And I did…by the time I went back within that 30 days, I had got it down. But I told him "I love food; I love eating but I don't love it enough to have to take a pill every day."*
> *–Meridian*

Discussion

This is the first qualitative study in Mississippi to ask low resource women their perceptions of healthy eating. This study also showed themes regarding the perceptions of healthy eating which were common in all regions of Mississippi. It is also the first study to demonstrate that low resource women were establishing major changes in their eating habits and considering 'healthy eating' as a lifestyle change. Low resource women in Mississippi knew general knowledge of the need to have more fruits and vegetables in healthy eating. They also described that 'healthy eating' can have a broad range of meaning from including particular food groups to controlling portion sizes, sugar, fried foods, salt, and eating regular meals. The perceptions of healthy eating for low resource

women in Mississippi mirrored the broad recommendations of the USDA Dietary Guidelines; however, no one mentioned the current reference of 'MyPlate.'

This study also focused on motivations for, and strategies that low resource women use to bring healthier foods to their family. The women in this study were motivated towards healthy eating to lose weight and to manage their chronic disease. They also looked deeply towards the future of their children. They utilized a variety of strategies to make healthy eating a part of their lifestyle from cost-effective shopping strategies to preparing foods in what were perceived as healthier methods. Healthy eating was also equated with being able to cook foods at home and using the garden. The knowledge within the groups may have varied as there were different ages of mothers/guardians with different levels of experiences.

Though they are motivated to improving their health and preventing health problems for their children, women faced daily decisions that did not allow for healthy eating. They perceived many notions about what healthy food is—from fresh foods to organic– and the cost of these foods is a barrier. Cost is not a surprising barrier as it is well documented in the literature (Dammann & Smith, 2009; Jones et al., 2014). Time and convenience, also cited in past literature, were major barriers to healthy eating (Jabs et al., 2007). The children played a large influence on how the mother/guardian believed that she could carry out the task of providing healthy meals. Mothers and guardians wanted guaranteed ways that they would please their family with their meals. When they made the effort to cook or buy a prepared meal, they want to know that it will be eaten and that children would be satisfied. These barriers are crucial to understand for an effective social marketing campaign.

Implications for 'healthy eating' social marketing campaign

The principle of social marketing is consumer orientation and the goal is to move the consumer's behavior to the next stage towards behavioral change. If the social marketing campaign were to take the stance of focusing on mothers and guardians in the contemplation stages of behavior, the role of the social marketing campaign in Mississippi would be to emphasize the benefits of healthy eating over the costs in the first phase and then address solutions to the cost. Based on the findings of this study, a social marketing campaign with women needs to emphasize her role of as mother and her concerns for her family. It could be inferred that first the perception of cost of healthy foods needs to be changed. Second, affordable, healthy foods would be more attractive to a Mississippi mother if the children eat them. Short actionable tips and recipes that are child-centric yet healthy would probably be attractive to Mississippi mothers.

As the participants use a broad range of definitions for 'healthy eating', the social marketing should also define healthy broadly. The data in this focus groups provides a rich basis for providing tips and suggestions to improving knowledge and attitudes towards healthy cooking and healthy eating.

Strengths and limitations

The findings from this study represent parents from 12 counties from around the state. The sample sizes and number of focus groups provided adequate saturation of themes. This study was based on those who were able to attend the focus groups. As focus groups are group discussions, there may have been some viewpoints that were more strongly voiced and there may have been some bias due to social desirability. While

recruitment tried to represent most groups residing in Mississippi, the study findings cannot be generalizable to all low resource populations.

Future directions

The current study is part of an overall research to design a social marketing campaign in the perspective of the low resource mother in Mississippi. Future study should look deeper into where mothers receive their information on nutrition and what communication messages would be effective.

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CHAPTER V

SUMMARY AND CONCLUSIONS

The framework for social marketing states that the perspective of the campaign must be consumer-oriented. The purpose of formative research is to provide an evidence base understanding of the consumer, from where to design a social marketing campaign. The formative research provides a basis on who the target consumer should be and what are their beliefs, motivations, context and barriers. From this data, a strategy can be developed that will encompass the target audience, the behavioral outcome, and the marketing mix. The strategy should also recognize competition and an evaluation design.

Target audience

Based on the response to the phone survey and focus groups, women were the primary caretakers of children and were most likely making the responsible decisions for providing food in the house. Women were mothers, grandmothers and sometimes aunts as well. The systematic literature review revealed that nutrition and physical activity campaigns in the last 10 years have also been including parents.

Limited resource women realize that healthy eating can help with weight reduction. Their perceptions of healthy eating was in alignment with the general nutrition guidelines from the main food groups to portion control to moderating sugar, fat and salt. They also knew that fruits and vegetables were one of the keys to healthy eating that they

could improve and include further in their lives. Mothers and guardians in Mississippi indicated that healthy foods were expensive.

The formative research demonstrated that this population wants to eat healthy and they are motivated to improve their personal health as well as that of their children. The findings from the phone survey and the focus groups suggested that families had access to gardens and that extended family would share vegetables. They could also save money in shopping other items and still buy vegetables if they wanted; however, they were concerned about the cost of fruits and vegetables as they felt there was not enough shelf-life time to use them. There was also a strong sentiment among mothers that it was a struggle to get their children to eat the vegetables. While they try to model healthy eating behaviors, they still need to please their family. What mothers buy and prepare is based on what their children eat. Convenience and time were other cited barriers. After long work hours, mothers are tired so extensive cooking does not always seem feasible. They are also the main parent who takes their children to after-school activities. Their current attitude is that healthy eating does not seem feasible when they are on the go; they turn to ready-prepared and portable snacks which are also cost effective. While meals and family time are important, snacking and convenient foods are also a big part of the family life.

Behavioral outcome

The social marketing campaign is as successful as the behavioral outcome that is chosen to be changed and measured. The model of Food Hero(Tobey, Koenig, Brown, & Manore, 2016) suggests in order to get families to eating more fruits and vegetables, the campaign should first change their attitudes towards cost and their self-efficacy to

feeding their families fruits and vegetables. Changing the attitudes would be the first step to changing a food consumption behavior such as increasing fruits and vegetables. Fruits and vegetable intake can be measured as a proxy by the proportion of parents utilizing recipes provided by the campaign. It can be inferred that each parent using a recipe is replacing snacking and unhealthy meals. Mississippi's campaign behavioral outcome should also include a measure on attitudes and practices about snack and meal times. Based on the experiences of other campaigns, less complexity in the campaign design would allow better understanding of the data.

Behavioral Stage of Change

The most effective social marketing campaign would target the target audience in the contemplation stage. Andreason combines the stages from the Transtheoretical Model and describes the contemplation stage as two phases for the social marketing framework (Andreasen, 1995). Both the phone survey and focus groups suggest there would be a sizable target audience of mothers and guardians of children in Mississippi in the contemplation stage of change. In this stage, the social marketing campaign emphasizes the benefits of healthy eating and shows ways to overcome costs (barriers).

Marketing Mix

Based on the focus groups and the systematic literature review, the social marketing campaign in Mississippi should have a full marketing mix. Mississippi mothers and guardians would respond to a campaign similar to that of the Food Hero campaign (Tobey et al, 2016). The following are recommendations for what a marketing mix could look like in Mississippi.

- Product. The campaign could provide healthy recipes and a mobile app that helps plan and estimate cost of meals and snacks. The app could convert the consumer's chosen recipes to a shopping list.
- Place. A website and perhaps a mobile app would make the recipes easily accessible.
- Price. The campaign should recognize that cost of food and approval from family are important to this audience. Recipes should show broad ways of buying vegetables (from fresh to canned) and incorporate ideas on cost-effective ways to using these vegetables. Recipes should also be tested and approved by children. Based on the Food Hero example, a majority of children in the state, such as more than 70%, should approve the recipes.
- Promotion. While this study did not analyze the internet accessibility among this population, per se, a campaign in Mississippi could be attractive to young mothers and grandmothers alike if widely accessible. Based on the research, promotion would minimally include a main website, taste tests, and posters in schools. Taste tests and discussions with school children is a key step to promoting the recipes to mothers. Community partnerships could also help promote and brand the campaign, for example grocery stores, SNAP and doctors' offices.

Competition

Choosing recipes from the Mississippi SNAP-Ed social marketing campaign would mean the target audience would reduce their intake of convenient cheap unhealthy

foods. However, we must realize that it will be easy to go back to old habits especially as alternative unhealthy foods are cheaper and more convenient. The social marketing campaign should address how to avoid temptations and encourage lifestyle changes.

Research and Evaluation

The formative research was the first step for the development of the campaign. Social marketing framework highly recommends that research and evaluation continues throughout the campaign. The objective of continued research would be to measure both process and outcomes of the campaign, in particular, the behavior change. The findings from this study suggest that at the minimum, the evaluation for the social marketing campaign in Mississippi should measure attitude change toward cost and self-efficacy in feeding fruits and vegetables to children.

Oregon's Food Hero Campaign (Tobey et al., 2016) and the Iowa Campaign (Their Bodies Change, so Should Their Milk/Pick a Better Snack)(Blitstein et al., 2016) both used a quasi-experimental design that controlled for campaign contamination. Both of these campaigns used periodic assessments to measure the behavioral changes. Oregon's campaign interacts continually with the target audience through their website and through schools.

Conclusions

The recommendations in this study, based on the research, provides a basis and confirmation for what a social marketing strategy can look like in Mississippi. Planning out a social marketing strategy and the evaluation should be done carefully with specific behavioral objectives and attainable goals. The campaign promotion on the website

should have a section for tasty on the go snacks designed for health and convenience. Mothers and guardians listen to what their children say and eat; therefore, promotion of healthy recipes through school children is very important to reaching parents and changing attitudes of self-efficacy. Messages oriented to the limited resource mother along with tips, resources, and child-approved recipes are estimated to revitalize the culture of food to a 'healthy eating' environment. This should not just be a passive campaign on the web in execution; it will require tremendous interaction with the target audiences. Using the evidence from this research, SNAP-Ed in Mississippi is well positioned to promote 'healthy eating' statewide.

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APPENDIX A

CODEBOOK FROM FOCUS GROUP TRANSCRIPT ANALYSIS

Table A.1 Codebook

additives	mention of chemicals added or not added to food; e.g hormones
convenience	Description of how convenience relates to healthy or unhealthy eating.
cost	how cost influences consuming foods perceived as healthy or unhealthy
exercise	coded when defined by participants as part of healthy eating/lifestyle; also coded when participants discuss a strategy to including exercise
family	how family influences a healthy lifestyle either for better or worse
farmer's market	perceptions of the farmer's market
fiber content	Perceptions of fiber and healthy eating
fruits and vegetables	Perceptions of fruits and vegetables and healthy eating
garden	Any mention of garden
healthier strategies	Comparison of a non-healthy eating to a healthier strategy
strategies with kids	Perceptions of healthy eating strategies that work with children
healthy eating	Participants define healthy eating broadly
meat	mention of meat; cross reference for context of healthy eating
milk	Mention of milk
perception of WIC	Participants discuss WIC benefits
planning	Situations of how participants plan or do not plan
quality	Characteristics of food or water quality
Rural	Category of the focus group based on RUCC 6-7 non-metro population up to 19,999
school	Mention of school in reference to healthy or unhealthy strategies
soda_sugary drinks	Mention of soda, juice, Kool-Aid, tea, or other types of drinks cross-referenced with healthy or unhealthy eating.
taste	How taste can influence eating healthy
unhealthy habits	Eating habits described by participants as unhealthy
Urban	Category of the focus group based on RUCC 1-3 metro classification
variety	Descriptions of having or not having desired variety of foods
water	Mention of water as part of healthy or unhealthy eating