

FOLLOW-UP SURVEY AND DATA ANALYSIS FOR THE BEST FOOD FOR
FAMILIES, INFANTS, AND TODDLERS (BEST FOOD FITS)
RESTAURANT INTERVENTION
IN SAN MARCOS, TX

by

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DEDICATION

This thesis is dedicated to Charlie Fisher, my blue-eyed son. You will forever be the little boy who stayed up late with me while I completed this project. I will never cease to treasure the countless hours spent researching and writing with you by my side.

I love you, stinky face.

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I. INTRODUCTION

Childhood overweight and obesity rates continue to be at all-time highs in the US, with Texas having a higher prevalence than the national average (1,2). This crisis results in a myriad of short and long term consequences for the millions of children across the US who suffer from excess weight (3,4,5). Thus, it is paramount that every effort be made to prevent/ treat childhood obesity. In order to develop effective methods of intervention, it is important to understand the causes of obesity in children. As the etiology of obesity is complex, it is best to view potential causes using a Socio-Ecological Model (SEM) (Figure 1). SEMs illustrate that causes of obesity range from individual factors (e.g. genetics) to environmental factors (e.g. restaurants) and finally to macro-level factors (e.g. farm subsidies).

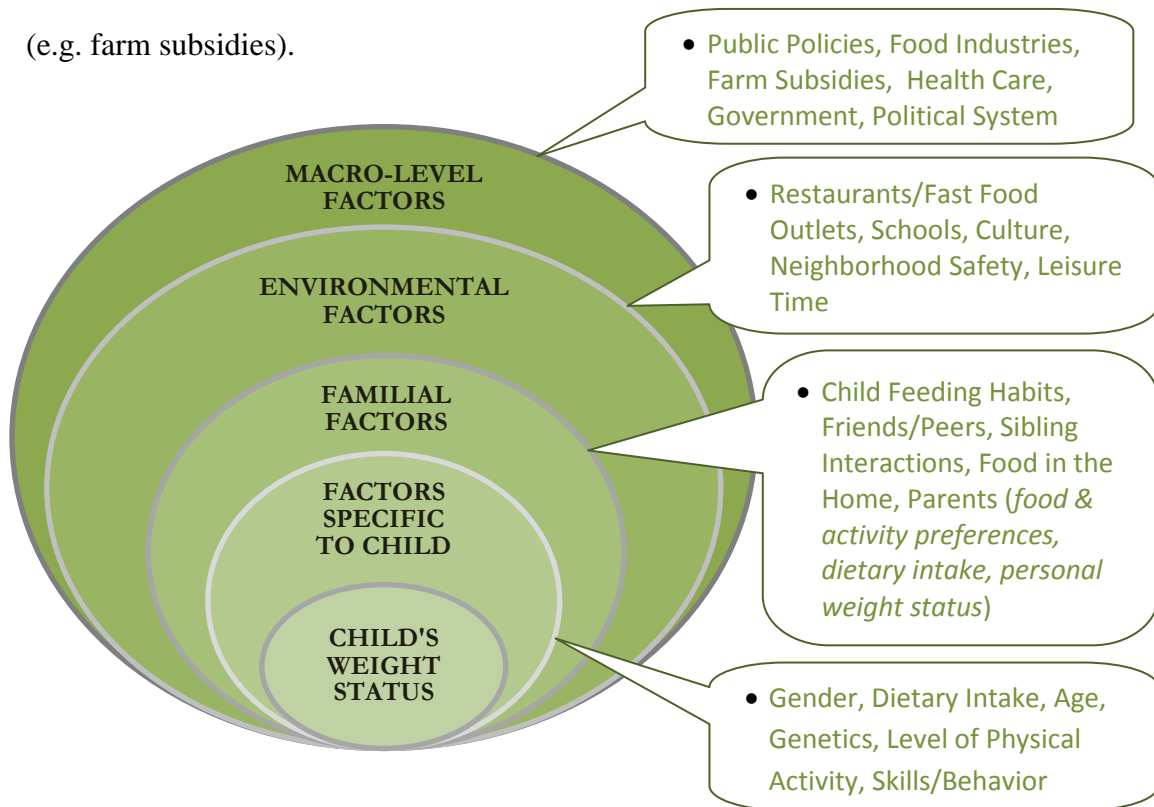


Figure 1. Socio Ecological Model for Factors Related to a Child's Weight Status (6)

From such models, it is evident that restaurants and fast-food outlets may serve as ideal targets for interventions/change, as they have been demonstrated to be contributors to excessive caloric intake among children. Recent data shows that an average of 34% of a child's daily caloric intake comes from away-from-home establishments (7). Research also indicates that the nutrient content of foods available for children at away-from-home-establishments is excessive in some categories (e.g. energy and fat) and bereft in others (e.g. essential vitamins) (8,9). Major contributors to these nutritional inadequacies are the limited offerings of fruits and vegetables juxtaposed to a surfeit of sugar-sweetened beverages (SSBs), both of which are often standard in children's menus (10). To date, most nutrition-based restaurant interventions have focused on improving menu labeling or highlighting healthy options on existing menus (11,12). These interventions have been only moderately useful as they have not resulted in improvements in the nutritional content of menus. Perhaps a more promising approach would be to instigate a process that results in substantive changes in entire menus. At present, only two studies have taken that approach, and neither has focused solely on children's menus. When considered together, however, these previous interventions have set the stage for the development of a child-focused restaurant intervention in south central Texas.

To begin this initiative, researchers collaborated with community stakeholders to create Best Food for Families, Infants, and Toddlers (Best Food FITS), a community-wide childhood obesity intervention program based in San Marcos, TX. The overall mission of this "branded" program has been to make it easier for children and their families to increase intake of fruits and vegetables, and decrease intake of SSB. To begin the restaurant initiative, researchers first collected children's menus from all restaurants in

San Marcos. Next, they contacted restaurant owners/managers, administered attitude/behavior/barrier surveys, and asked for consent to participate in Best Food FITS by changing existing children's menus or developing new, healthful children's menus. This novel intervention was the first to work directly and iteratively with restaurant managers/owners on improving children's menus. This initiative was executed with the intent of creating a community-recognized nutritional campaign in the Hays County area. This project was completed in 2011, and data was successfully compiled. However, the data had not been statistically analyzed and the work had yet to be published.

The purpose of the project described herein was to 1) analyze previously collected data from children's menus and pre-surveys completed by restaurant owners/managers in San Marcos, 2) administer follow-up surveys to patrons of participating Best Food FITS restaurants to gather current impressions and impact of the children's menus, and 3) present this work a manuscript format suitable for submission to a peer-reviewed journal.

II. BACKGROUND

Obesity Epidemic

Obesity continues to be a widespread health concern throughout the nation. Recent data from the Centers for Disease Control and Prevention (CDC) shows that the prevalence of childhood overweight and obesity has continually persisted at high levels (1). It is approximated that among 2-19 year olds, 15% are classified as overweight (with a body mass index (BMI) \geq 85th percentile) and 17% are classified as obese (with a BMI \geq 95th percentile) (1). Thus, 32% of US children and adolescents are currently living with an unhealthy weight status (1,13). Moreover, certain populations of Texas children are at elevated risk for overweight/obesity (2). Data shows that among school aged children, Hispanic children are 1.8 times more likely to be overweight or obese in comparison to Caucasian children (1,13,14). Significant consequences of childhood overweight and obesity have been established both in physiological and psychological fields.

Physiological effects include a variety of conditions that can be persistent (3). Children are more susceptible to arterial damage, high blood pressure, diabetes mellitus, eating disorders, nonalcoholic fatty liver disease, and the complications that accompany each chronic disease state (3). Several studies also highlight the mental and emotional consequences of obesity (4,5). Overweight and obese children are more likely than their normal weight counterparts to experience depression, anxiety, and emotional distress (4). These effects are often the result of peer teasing and dissatisfied body image (4).

Negative mental and emotional corollaries may also be attributed to the altered lifestyle of these children. Cross-sectional data reveals that in comparison to healthy weight children, overweight and obese children are more likely to internalize and externalize

problems, limit normal child activities, have attention deficit/hyperactivity issues, and exhibit other behavior disorders (5). With respect to education, overweight children are also more likely to experience increased grade repetition, excessive absences, and overall more problems at school (5). In light of the multifaceted consequences and the number of children being afflicted, researchers must find realistic interventions that address the causes of childhood obesity. Factors related to and contributing to obesity, though, are complex. Numerous SEMs have been generated to depict potential contributors to development of childhood overweight and obesity. Most of these models include factors related specifically to the child, their parents/family members, and to the broader environment in which the child subsists (6). By aiming obesity interventions at a more broad component of the SEM (e.g. a common environmental factors), researchers may positively influence the nutritional environment of children and their families. Current research highlights the influence of the food environment, specifically fast food and restaurant outlets, as a prime area of the SEM that can potentially be altered to improve the obesity situation for many different children.

Current Fast Food/Restaurant Trends

In general, Americans consume a large number of calories outside the home (15). The average percentage of daily energy intake for children from away-from-home eating establishments is 34% (7). This figure has increased significantly from an average of 23% in 1977 (7). These estimates were drawn from four nationally representative food intake surveys conducted among approximately 30,000 children ages 2-18 (7). Analysis of these surveys, which included the National Health and Nutrition Examination Surveys (NHANES), also revealed that fast food and restaurant outlets were responsible for an

average of 17% of the daily caloric intake in children (7). Thus, calories consumed from food establishments now exceeds calorie intake from schools, making fast foods and restaurants the largest supplier of away-from-home food consumption for children ages 2-18 (7). This significant intake of daily caloric consumption from food establishments is of particular concern when the nutritional content and quality of these meals is considered.

A recent analysis of 22 of the largest restaurant chains in the country compared the nutritional content of the children's menus to recommendations from the Dietary Guidelines for Americans (8). Results revealed that 99% of the 1662 meal combinations were classified as nutritionally poor (8). Forty-four percent of children's options provided excessive amounts of saturated and trans fat, and 46% provided excess total fat (8). Additionally, the average meal provided about 300 calories more than that recommended in the Dietary Guidelines for Americans (8). In fact, some meals contained as much as 1580 calories, over three times the 430 calories recommended for a single child's meal (8). Furthermore, two-thirds of the children's menus lacked even a single option that met nutritional standards (8). Beverages are another issue of concern, as they are almost always included on children's menus. SSB such as soft drinks, juices, or other types of sweetened drinks, often prevail in lieu of healthful options (8). An examination of NHANES data focused on children ages 2-11 and 12-19 showed that both age groups consumed more SSB when eating at restaurants or fast food outlets than when eating meals at home (10). In fact, intake of soda and SSB was approximately twice as high at these establishments compared to what was consumed in their homes (10). Another evaluation of 400 US chain restaurants showed that most specialty drinks on children's

menus had more calories, saturated fat, and carbohydrates than those on adult menus (16).

Another recent study analyzed children's meals in fast food chains using the Healthy Eating Index (HEI-2005). The Healthy Eating Index-2005 is a scoring system developed by the United States Department of Agriculture that measures dietary quality in accordance with the 2005 Dietary Guidelines for Americans (17). This system uses a scoring assessment method for each component of the dietary recommendations, including categories such as whole fruits, whole grains, meat and beans, oils, and sodium (17). In an analysis of five prevalent US fast food chains, researchers reported that out of 100 possible HEI points, not a single restaurant received higher than a score of 72 for any of their offerings for children (18). These low scores were allotted to meal options that were labeled as "healthy" or "nutritious" (18). The shortcomings on menus contributing to these low scores were the lack of whole grains, fruits and vegetables, as well as an overabundance of sodium, fats, and added sugars (18). Micronutrients are often scarce on menus as well. Another investigation of fast food dietary composition was conducted in the early 2000's (9). The goal was to examine differences in the overall diet quality and micronutrient content of diets among patrons (adults and children) who did and did not consume fast food (9). As expected, adults and children who reported eating fast food had significantly higher intakes of fats, sodium, and overall calories than those who did not (9). Diets of those who ate out often were also significantly lower in dark green vegetables, other non-starchy vegetables, fruits, milk, and breads (9). Diets of children who ate out often were lower in numerous essential nutrients, such as vitamin A, beta carotene, vitamin C, protein, and dietary fiber (9).

The current body of literature clearly suggests that adults and children are consuming many meals at fast food and chain restaurants, and that the majority of the offerings for children are nutritionally inadequate.

Influence of the Food Environment on a Child's Health Status

The weight and metabolic status of a child are negatively impacted by frequent dining at away-from-home food outlets. A British study conducted on children ages 4-5 and 10-11 reported a significantly increased risk of obesity among those who lived in close proximity to fast food outlets and restaurants compared with children who did not (19). Another study that investigated the correlation between BMI and frequency of fast food consumption showed that nearly 46% of their family cohorts reported eating at restaurants at least once a week (20). Among these families, over 16% of children were overweight and another 31% were obese (20). Two studies, the Identifying the Determinants of Eating and Activity (IDEA) and the Etiology of Childhood Obesity (ECHO) study, have also recently investigated factors contributing to unhealthy weight status in adolescents (21). In these studies, almost 50% of participants dined at away-from-home establishments on a weekly basis (21). This pattern of eating out was associated with a 1.5-2 times higher likelihood of being overweight/obese (21). Results of the IDEA and ECHO studies also identified several negative biochemical markers associated with increased visits to away-from-home eating establishments (21). For example, adolescent cohorts had significantly higher high density lipoprotein levels, metabolic risk cluster z scores, and insulin levels, all of which are biomarkers of cardiovascular disease (21). In fact, negative results were seen in families that ate out only once per week. In short, the weight and biochemical implications of away-from-

home meals are well documented in the current literature and are almost assumed based on the pre-established nutritional content of fast food.

Eating at away-from-home dining establishments is also associated with increased consumption of SSB and sugar-rich foods. A recent study examined the relationship between fast-food visits and intakes of sugar loaded products among children ages 5-7 (20). Unsurprisingly, the children who frequented fast-food outlets had a higher likelihood of being overweight or obese (20). Additionally though, they were also shown to consume more sweet/savory snacks and desserts, more SSB, and less water (20). An extensive review of childhood obesity studies confirms that consumption of SSB is one of the top concerns for childhood obesity (22). This review echoed that unhealthy side offerings for children, such as overly sweetened treats and drinks, are commonly seen in fast food and restaurant environments. Research suggests another unique problem with the consumption of foods at restaurants and fast food outlets: Individuals who are overweight or obese consume significantly more food in these away-from-home environments than normal weight counterparts (23). While this study investigated adults, it showed that overweight or obese individuals consumed significantly more calories at away-from-home food outlets than did their healthy counterparts (23). Moreover, in contrast to the healthy weight participants, the overweight/obese persons consume larger amounts of these foods even when their stomach contents were reasonably full (23). This poses an even greater dilemma for the nearly 1/3 of US children who are overweight or obese, as once they are at an unhealthy weight, the restaurant and fast food environments may perpetuate the problem through an influence to overindulge and consume excessively more than what they need.

The literature is conclusive on the powerful influence of away-from-home eating environments on a child's weight status and metabolic health. Children are more likely to eat unhealthy side items (such as SSB and other sugary foods) and consume more excessive quantities at these establishments once they have a weight problem. All of these influences further contribute to the complexity of the childhood obesity epidemic.

Types of Previous Away-From-Home-Meal Interventions

Given the significant influence restaurants and fast food outlets can have on the diets of children, one begins to better understand the vital role of these environments in childhood nutrition and obesity. Several different types of interventions have been conducted in away-from-home food settings in hopes of transforming these establishments into more positive influences on the weight status of children.

Calorie/Menu Labeling Interventions

Menu labeling at fast food restaurants includes some manner of providing the nutritional content/values of meals on menus. This can include providing the actual caloric value of food items, as well as labeling menu items with symbol codes (e.g. a red, yellow, or green traffic light) as indicators of the nutritional content of different foods (11,24,25,26,27). A study conducted by Tandon et al. was one of the first to find positive effects from changes in menu labeling (11). This study involved placing caloric information beside every item on a McDonald's menu and asking parents of a child ages 3-6 to order a hypothetical meal for themselves and for their child. In comparison with a control group that had normal, unlabeled menus, the parents viewing the calorically labeled menus ordered a meal for their child that had an average of 102 fewer calories

(11). While this effect was positive and statistically significant, it has unfortunately not been corroborated by other research results “from the field”. For example, a study conducted within 18 months after menu labeling became a regulation in numerous US jurisdictions investigated outcomes of menu labeling in the ten most popular restaurant chains in a Washington community (24). At the end of data collection and analysis, customer awareness of the labeling increased from 18.8% to over 61% in the restaurant chains (24). Despite increased awareness, however, the average caloric intake of all customers using the labeled menus was only 38 calories lower than that of customers not viewing the labeled menus, which was not enough to yield statistical significance (24). A comparable study was conducted in New York (with New Jersey as a parallel city) before and after the mandatory labeling of menus was implemented (25). This study was conducted in low socioeconomic communities with children and adolescents (ages 1-17 years). It involved analyzing the caloric content of purchases from this age group based on survey data and purchase receipts from four major chains in the two regions. Similar to previous results, study analyses revealed that while awareness of nutritional content increased among restaurant patrons, caloric consumption did not decrease (25). Another study investigated the effect of menu labeling on adults’ awareness and ordering practices using four different label systems (26). This study employed: 1) a control menu with no nutritional information, 2) a menu labeled with calories, 3) a menu labeled with calories expressed in traffic light images, and 4) a menu labeled with the amount of calories, fat, sodium, and sugar using traffic light images (26). Results again showed an increased awareness of the nutritional content of the establishments’ food offerings, as well as an average of 96 fewer calories with those choosing from the calorically labeled menu as

opposed to the control menu (26). The amount of calories selected amongst all groups, however, was not significantly different across groups, and the traffic light images appeared to have almost no impact on energy consumption (26). Comparably, a final study published in 2014 echoed these insignificant results, when researchers had parents order hypothetical meals for their child (ages 3-12) off of one of the following menus: 1) a calorically labeled menu, 2) a traffic light labeled menu, or 3) a control menu with no nutritional information (27). Analysis of orders placed by over 300 cohorts revealed that the calorie content of meals ordered from both the calorie and traffic light intervention menus was similar to that of meals ordered off the control menu, suggesting that this labeling intervention was not successful in reducing the calorie content of hypothetically ordered meals (27).

In conclusion, results of the majority of recent suggest that changes in restaurant menu labeling may not play a significant role in improving the nutritional quality of the meals ordered off the menus. Current research on both adults and children only indicates that menu labeling provides more awareness and knowledge about the foods being offered in these outlets. Therefore, menu labeling changes will likely not be sufficient to improve the fast food and restaurant environment for children.

Changing How Restaurant Food is Offered

A few interventions have involved changing how away-from-home foods are offered (e.g. form of the food or portion size) in hopes of promoting a healthier eating environment. A recent study tested the effectiveness of verbally prompting customers upon ordering at a Chinese restaurant to downsize particular side dishes (28). Between

14-33% (different based on experimental groups) of their customers accepted the downsizing option, resulting in an average of 200 fewer calories per meal (28). This study is very impactful, as it shows significant potential for interventions that aim to alter the portion sizes of menu options in attempt to encourage a more healthful food decision. Another concept along the lines of altering food is changing the form or presentation of food as a means of provoking better choices. A study conducted in the Netherlands observed what happened when fruit offered to children was made more attractive by serving it pre-sliced and with decorative toothpicks (29). The results revealed that compared to normal whole fruit served on a simple white plate, children consumed substantially more of the fruit prepared decoratively and ready to eat (29). This idea of encouraging the consumption of healthier foods by pre-slicing/preparing was the foundation for a school-based study in New York (30). Researchers offered pre-sliced apples in test middle schools to determine if students purchased and consumed more in comparison with schools that offered whole apples. Compared to whole apple purchases, children in the test middle schools purchased 71% more of the pre-sliced apples (30). Also, significantly more students who purchased the pre-sliced apples ate more than half of their sliced apples when compared to students who purchased whole apples, resulting in less waste from the pre-sliced offering (30). These interventions demonstrated that seemingly small alterations to food already being offered at eating establishments can make a difference in dietary intake. Implementation of these interventions was also relatively seamless, making these results potentially useful in the fast food environment.

Nutrition/Community Campaign Interventions

Some research suggests that combining some of these previous intervention methods with identifiable nutrition campaigns may be a successful intervention approach in addressing childhood obesity (31,32). A Canadian study focusing on two restaurants in a low-income neighborhood tested the viability of a modest menu alteration on promoting healthy eating choices in these establishments (31). The intervention was very minimal due to owner hesitancy, but the menu alterations included small changes such as providing low-fat options, adding low-fat milks and salad dressings, and labeling healthier menu options with a catch-phrase and a smiley face (31). The program was temporary, lasting only 13 weeks in one restaurant and 19 weeks in another (31). Results showed that in one of the restaurants (a family-style establishment) ordering of labeled entrees and specially provided low-fat items increased by over 77% and 51%, respectively (31). A similar study showed equally promising results when initiating a campaign to promote low fat/high fiber choices in numerous restaurants (32). This intervention did not alter the existing menus of the restaurants, but rather evaluated menu offerings and allowed restaurants to participate if they offered specific types of food choices (e.g. low fat options, plain vegetables, and leaner, smaller servings of meats) (32). 36% of the restaurants who participated in the campaign indicated an increase in sales for their promoted healthy items over the 16-month course of the intervention (32). Both of these initial studies provided promotional items for their healthy menu campaigns, such as stickers, door decals, menu labels, and posters, indicating promise for this type of campaign-like intervention method. More current research confirms the effectiveness of promoting healthy items existing on restaurant menus (33,34). In an attempt to encourage

the consumption of more heart-healthy meals, a Michigan-based intervention worked with nine community restaurants to promote the heart-healthy menu offerings through print media, hospitals, fitness centers, table tents, and posters (33). On average, there was a slight increase in the sales of these items over the course of the campaign (33). The “TrEAT Yourself Well” Restaurant Nutrition Campaign was a quasi-experimental study with four relatively large restaurants (two experimental and two control groups) (34). With their experimental restaurants, they found that a promotional campaign increased both the probability of healthy food sales as well as consumers’ positive attitudes towards healthier menu items (34). These studies all demonstrate potential for the effectiveness and feasibility of nutrition campaigns, leading the way for further development and implementation of these programs for communities and restaurants.

Recent nutrition initiatives have expanded on these earlier intervention efforts by altering and developing new menu items for restaurants/food outlets. A nutrition campaign called “Steps to a Healthier Salinas” was developed to improve the food environments in taquerias and other fast food outlets by creating new dishes and revamping old ones to include more fruits and vegetables and decrease fat content (12). This intervention included the promotional features similar to earlier campaigns, such as special logos, menu labeling, a branded program name, and public advertisement (12). However, researchers went much further in their community outreach efforts than previous initiatives. They developed a health education component that included teaching the taqueria owners about diabetes risks, different nutritional qualities of foods, and the extent of their personal influence on their community through the foods offered at their establishments (12). This made the taqueria owners informed, active participants in the

community intervention, a novel approach to encourage participation and enthusiasm (12). A similar intervention called ¡Por Vida! was developed in 2010 in the neighboring city of San Antonio, TX (35,36). This restaurant intervention was a product of the Healthy Restaurants Coalition (HRC) of Bexar County, a partnership of public health experts, food/restaurant professionals, and registered dietitians (35). ¡Por Vida! was developed to be a culturally significant obesity intervention for the large Hispanic population of San Antonio (36). Their intervention involved modifying portions of children's menus based on the 2005 Dietary Guidelines for Americans, as well as a community-wide campaign with advertising efforts comparable to the previous studies mentioned (35,36). ¡Por Vida! included adult menus at over 75 restaurant locations in the Bexar Country area (35,36). Their campaign had follow-up assessments suggesting that the ¡Por Vida! menu logo was a promising intervention tool for influencing individual's choices at these restaurants (36). Another intervention incorporated several of these previous strategies as part of a larger, community-wide initiative called "Shape Up Somerville: Eat Smart, Play Hard", a campaign aimed towards changing numerous aspects of their children's environments in an effort to curtail childhood obesity (37). For their restaurant-specific intervention phase of the project, participating establishments were required to offer only one healthy meal on their children's menu, as specified by criteria from the National School Lunch Program guidelines (37). These restaurant initiatives echo again the efficacy of community nutrition campaigns, but also demonstrate the feasibility of making healthy menu alterations to meet higher nutritional standards in restaurants.

Best Food FITS

Best Food for Families, Infants, and Toddlers (Best Food FITS) is a community-based childhood obesity intervention program developed in 2010 by the Texas State University Nutrition and Foods Program and funded by the Texas Department of State Health Services. The program drew from previous nutrition interventions and evidenced-based guidelines to create a branded community initiative with an emphasis on the improvement of children's menus in local restaurants. To date, the restaurant intervention component of Best Food FITS is the first program to both study a community's restaurant environment with respect to children's menus and work iteratively with community restaurants to improve the nutrition content their children's menus.

Goals

The main goal of Best Food FITS researchers was to develop a sustainable, community-based childhood obesity intervention through the implementation of permanent changes in local restaurant menus. This was pursued by creating a branded intervention, forming a coalition of influential community leaders for guidance and sustainability, and working iteratively with restaurant managers/owners to improve children's menus in these local establishments. The overall objectives were as follows: 1) increase fruit and vegetable intake, 2) decrease intake of SSB, and 3) provide more healthful main entrees on children's menus.

Intervention

Best Food FITS researchers began their intervention by forming a coalition of community leaders in the San Marcos/Hays County area. Coalition members provided key insight into the most effective ways to implement the program, as well as how to establish recognition and sustainability within the community. To begin the intervention, a list of all food establishments in San Marcos, TX, was obtained from the city's health inspection office. Restaurants were immediately excluded from the study if they were venues that did not actually serve meals (e.g. bars, coffee shops, and bowling alleys), culling the initial list of eating establishments to 137 potential restaurants. All available menu data was collected, through hard copies or photographs of the menus. In total, 85 children's menus were gathered for statistical analyses. Menus were then processed and analyzed using SPSS software for all entrees, sides, desserts, and beverages. In addition, researchers also used the Children's Menu Assessment tool (38) to evaluate the menu offerings for children in each restaurant. Following Institutional Review Board approval, each food establishment was then contacted via phone and/or physical site visits. Pre-surveys were administered by research assistants to 61 owners/managers. These pre-assessments inquired about attitudes, knowledge and beliefs concerning child obesity along with questions regarding opinions about SSBs, patron desires for healthier foods, and the restaurant's capacity to serve more healthful food items for children. Restaurant owners/managers were then presented with information packets describing the short and long term effects of childhood obesity on a child, as well as an introduction to the Best Food FITS initiative and an overview of the restaurant intervention program. This

overview consisted of an invitation to participate along with a description of the different levels at which a restaurant could participate (Figure 2).

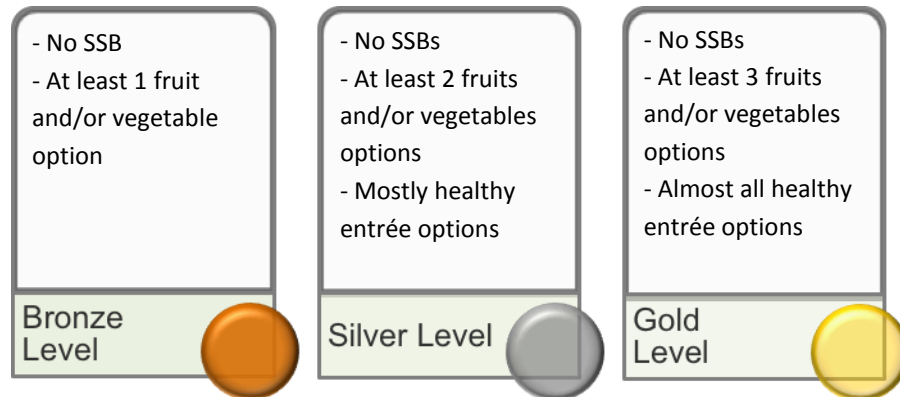


Figure 2. Criteria for Different Levels of Best Food FITS Children's Menus.

Each level mandatorily included two of the main goals of the intervention, which were omission of SSBs and offering fruits and vegetables. Upon agreement to participate, restaurant owners/managers signed a Best Food FITS contract. Researchers then worked with each establishment to either revise their current children's menus or develop an original one, all using a highly iterative process in compliance with the Best Food FITS standards. The 17 participating restaurants were given a Best Food FITS decal to put on their entrances, brand new children's menus, t-shirts, coloring placemats, cups, reusable grocery bags, table tents, and free advertising through a myriad of media outlets. At the conclusion of the intervention, researchers administered post-surveys for both participating and non-participating restaurants to assess the influence of the intervention on practices and attitudes, as well any barriers to implementing the healthier children's menus.

III. OBJECTIVES

The objectives of this current study are: 1) to analyze the Best Food FITS restaurant pre- and post-intervention data, including menu assessments and surveys, 2) conduct a follow-up survey with participating restaurants' patrons, and 3) prepare a manuscript of this project for peer-reviewed publication. With regard to the first objective, we expect to see higher nutritional quality in the restaurants' children's menus, including fewer offerings of SSBs, more offerings of whole fruits and vegetables, and more healthful entrées. With regard to the second objective, we hope to see positive feedback from clients regarding the Best Food FITS menus on our follow-up survey. Lastly, with regard to the third objective, we expect to publish our findings as a new, sustainable childhood obesity intervention in an at risk community.

IV. METHODS

Procedure

Overview

The 17 original participants in the Best Food FITS restaurant intervention were contacted and surveyed in May and June 2014. If the owner/manager was contacted by phone, the researcher described the follow-up study using an interview script, which explained: 1) the objectives of the current study, 2) the procedure for collecting the data, and 3) the informed consent process needed for the follow-up assessment in their establishments. In person, the researcher asked owners of restaurants still using the Best Food FITS children's menus to participate in the follow-up survey/assessment process. Follow-up data was collected from the participating restaurants for a timeframe of two weeks per restaurant from the time surveys were distributed. These data, along with all existing pre- and post-intervention data from the original study, was then analyzed. All actions were compliant with both the Texas State University and the Texas Department of State and Human Services Institutional Review Board guidelines.

Instruments

Contact/Scheduling Script

A standardized call script (see Appendix) was used to contact the 17 restaurants that originally participated in the intervention. If the restaurants were still actively offering their Best Food FITS children's menus, scheduling for disbursement of follow-up surveys was conducted upon informed consent from managers/owners. If the restaurants had

ceased to use the Best Food FITS program in their facilities, the researcher assessed why and prompted/encouraged them to re-implement the program. If the owners/managers agreed to re-implement the program, then scheduling and distribution of follow-up surveys was conducted at their facilities as well.

Follow-Up Survey

The follow-up survey was a 10-question assessment that evaluated the efficacy, sustainability, and recognition of the Best Food FITS intervention from the perspective of the consumers (see Appendix). Nine of the ten questions were closed ended, making the survey easy and quick to use. This survey was adapted from a 2013 follow-up assessment measuring the effects of a non-chain restaurant intervention (39). This instrument underwent clarity testing and face validity, as well as a test-retest that indicated good reliability of the tool for this type of data collection (30).

Data Collection: Surveys

Follow-up surveys along with survey collection folders were delivered to participating restaurants. In person, the researcher instructed restaurant personnel to provide a survey to every patron with a child (or children) who dined at their establishment. The timeframe and manner of distributing the survey was detailed, and all questions regarding the process were answered. Completed surveys were collected in the provided folder. All follow-up surveys were collected exactly after two weeks from the original distribution date.

Data Analysis

Follow-up data and previously collected menu/survey data were analyzed using the Statistical Package for Social Sciences (SPSS, Version 20). For the menu analysis, independent-samples t-tests were used to investigate all menu items of interest (e.g. sugar-sweetened beverages, healthy vegetables/fruits, and healthful entrées) pre- and post- intervention, specifically comparing the averages of Best Food FITS restaurants versus non-participating establishments. Independent-samples t-test were also conducted to compare overall averages for Children's Menu Assessment scores, pricing of children's menus, and answers from the owner/manager pre-surveys. Additionally, exploratory analysis was used to analyze surveys and assess covariates (e.g. knowledge, attitudes, and other survey responses by participants) associated with participation in Best Food FITS. Pearson's Product-moment Correlation tests were attempted to generate correlates to Best Food FITS participation. All statistical analysis was conducted after consultation with a statistician from the Initiative for Interdisciplinary Research Design and Analysis (IIRDA).

V. MANUSCRIPT¹

¹This chapter was submitted and accepted for publication to the academic journal *Preventing Chronic Disease*. Its style is formatted to match the requirements for this journal, which uses the references, citation, and general style of the *Uniform Requirements for Manuscripts Submitted to Biomedical Journals* by the International Committee of Medical Journal Editors.

Abstract

Background

Approximately 32% of US children are overweight or obese. Restaurant and fast food meals, contributing 17% of daily calories among children ages 2-18, constitute a significant environmental influence on dietary intake. Changing default offerings on children's menus may improve dietary intake. Best Food for Families, Infants and Toddlers (Best Food FITS), a community-based program dedicated to combating childhood obesity, sought to partner with local restaurants to improve children's menus by removing sugar-sweetened beverages, decreasing high energy-dense entrées, and increasing fruits and vegetables.

Community Context

San Marcos, currently the fastest growing US city, has considerably more restaurants and fewer grocery stores than other Texas cities. San Marcos is diverse, with 37.8% of residents and 70.3% of children identified as Hispanic. School overweight/obesity rates exceed 50%; 40.3% of children live below the poverty level.

Methods

The Best Food FITS program and menu intervention were implemented by: developing a Best Food FITS brand, cultivating of a community coalition, reviewing existing

children's menus in local restaurants, administering owner/manager surveys, and collaborating with restaurants to improve children's menus.

Outcome

The Best Food FITS program and brand were successfully created, adapted, and sustained in the community. A total of 17 restaurants implemented new menus, which were significantly improved; only 1 chain restaurant participated.

Interpretation

Altering the default menus in restaurants can be a simple step towards changing children's food habits. The approach taken in this case study can be adapted to other communities. Seed money would facilitate development of promotional items to support brand recognition.

Background

Although rates of increase in the incidence of overweight and obesity in children have recently flattened, at present, about 32% of US children ages 2-19 are classified as overweight or obese (13). Dietary intake is an important modifiable determinant of body weight. Ecological models that systematize potential influences on dietary intake arrange categories of influences into concentric spheres, ranging from personal factors (e.g. biological, lifestyle) in the tightest sphere, to sequentially broader realms of influence (e.g. social, environmental, public policy) (6). Of the broader influences, food consumed away from home, which falls in the environmental realm, has become prominent. Children ages 2-18 obtain 34% of daily calories from food outside the home, with 17%

coming from fast food establishments and restaurants (7). Compared with home-cooked meals, foods consumed away from home are higher in calories, fat, sodium, and sugar, and contain fewer essential nutrients (8). Additionally, meals away from home often include sugar-sweetened beverages (SSB) and lack fruits and vegetables (8). Improving default offerings on children's menus in restaurants has potential to improve dietary intake and thereby combat obesity (40).

Some community interventions have attempted to improve the nutrition profile of restaurant menus. For example, Shape Up Somerville worked with local restaurants to reduce portion sizes, add fruits and vegetables, and offer reduced fat dairy products (37). Steps to a Healthier Salinas targeted taquerias to encourage the development and promotion of healthier foods (12). In San Antonio, Texas, ¡Por Vida! involved Registered Dietitians working with local restaurants to identify menu items that met the Dietary Guidelines for Americans (35,36).

The project described herein created Best Food for Families, Infants, and Toddlers (Best Food FITS), a community organization dedicated to combating obesity, and engaged restaurants to improve children's menus in a community exhibiting high rates of childhood obesity.

Community Context

This study was conducted in San Marcos, a city in south central Texas located about halfway between the major metropolitan areas of Austin and San Antonio. For the second consecutive year, San Marcos has been designated as the fastest growing city in the

country (41). The population is ethnically diverse, with approximately 37.8% of the 54,000 residents and 70.3% of school children enrolled in San Marcos CISD identified as Hispanic (42,43). The poverty level in San Marcos is 131.8% higher than the national average; 40.3% of children in San Marcos live below the poverty level (42,43). San Marcos schoolchildren have higher rates of overweight and obesity than children across the state (approximately 36.3%) and nation (approximately 31.3%) (44). Specifically, FITNESSGRAM™ data reveals that over 50% of 5th and 7th graders in San Marcos CISD are overweight or obese (45). Dietary practices of children in this area that may be associated with excess body weight include high intake of SSB and low intake of fruits and vegetables (46,47).

A major exit on Interstate Highway 35, San Marcos has considerably more restaurants per capita compared to the rest of the state; importantly, San Marcos also has fewer grocery stores per capital (43). There is currently no city restaurant association. Given the high rates of overweight and obesity among children in San Marcos, combined with dietary practices associated with excess weight, improving children's menus in restaurants in San Marcos could constitute a change in the environmental sphere of influence with potential to improve children's diets.

The primary objective of this initiative was to create a program, Best Food FITS, dedicated to improving children's health and combating childhood obesity by making it easier for children to improve their diets. We chose 3 obesity prevention target areas identified by the Texas Nutrition, Physical Activity, and Obesity Prevention Program

upon which to focus, including increasing intake of fruits and vegetables, decreasing intake of SSB, and decreasing intake of high-energy-dense foods (47). The outcomes for this objective were the creation of a Best Food FITS brand, with a recognizable logo and cartoon vegetable graphics, and formation of a Best Food FITS coalition. The objective of Best Food FITS first community engagement, described in this case study, was to partner with San Marcos restaurants to improve children's menus. The outcomes for this objective include the collaboration with restaurant owners/managers to change menus.

Methods

Best Foods FITS was launched in spring 2010 upon receipt of an 18-month grant from the state. We proceeded to: 1) develop a Best Food FITS brand with a recognizable logo and cartoon vegetable graphics; 2) cultivate a community coalition dedicated to promoting children's health; 3) collect and review existing children's menus in San Marcos restaurants; 4) using a survey, gather input about the use of children's menus; 5) collaborate with participating restaurant owners/managers to improve children's menus; and 6) assess the impact of the intervention. The university Institutional Review Board approved all aspects of this project.

Best Food FITS Brand

We collaborated with the university marketing department to develop a Best Food FITS logo and kid-appealing vegetable cartoon graphics to foster brand recognition in the community. The logo and graphics were used on Best Food FITS promotional items (e.g. T-shirts, bumper stickers, health fair posters) and menus. (Figure 3 shows character graphics and a sample menu.)

Sample Pre-Intervention Menu		
	Menu Items	Prices
1	Angus hamburger/fries/drink 20oz	4.99
2	Chicken sandwich/fries/drink 20oz	4.99
3	2 piece dark chicken	2.99
4	2 piece chicken w/rice and beans	4.99
5	1 piece chicken w/rice and beans	2.49
6	1 piece dark chicken	1.49
	Appetizers	Prices
1	Jalapeno Poppers	2 for \$1
2	Jalapeno Poppers w/cream cheese	2 for \$1
3	Cheese Sticks	3 for \$1
4	Chips/salsa	1.99
5	Chips/queso	2.49
6	Pickles	0.99
7	Extra Homemade salsa	3 for \$1
8	Extra jalapeno salsa	3 for \$1
	Side Items	Price
1	French fries	1.49
2	Potato Salad	1.50
3	Baked Potato	2.99
4	Sour Cream	0.35
5	Guacamole	0.75
6	Beans	1.50
7	Rice	1.00
8	Extra Tortillas 8	1.00
9	Corn on the cob (seasonal)	2.49
	Kids Menu	Price
1	1 piece chicken w/fries and small drink	2.99



Best Food FITS! Menu

KID'S MENU

Under 10 Years Only

Each Meal Includes an Entrée, a Side, and a Kid's Drink



Entrée

One Piece Chicken Breast
One Chicken or Beef Taco
(Corn or Flour Tortilla with Bell Peppers and Onions)

Sides

Corn on the Cob
Fruit (seasonal)
Fruit Cup
Guacamole
Black Beans
Coleslaw
Rice



\$ 1.99 Kid's Meal with the Purchase of any Adult Entrée!!!

Kid's Drinks

Bottled Water
100% Juice



Best Food for Families, Infants, and Toddlers (Best Food FITS) is a community partnership dedicated to preventing child obesity in San Marcos, Texas.

For more information visit our website at:
<http://bestfoodfits.fcs.txstate.edu>



Figure 3. Example of Best Food FITS Menu Alterations and Sample Characters.

A Best Food FITS logo decal was later affixed to doors of participating restaurants. The brand was also advertised throughout the community through articles in the local newspaper, TV station, social media, and among coalition partner organizations.

Coalition

To form a coalition, we invited leaders from local organizations involved in community health and representing the diverse San Marcos population, such as the local Special Supplemental Nutrition Program for Women, Infants, and Children, Head Start, the city housing authority, the food bank, the county extension, the hospital, the local gardening group and the farmers market. A key member was the owner of a landmark local restaurant. The coalition met several times during the first year to discuss issues around child obesity and offer input regarding the restaurant intervention.

Assessment of Existing Menus

In summer 2010, the city's health inspection office provided a list of establishments that served food in the city. After eliminating food stores and establishments that did not serve children, we visited the remaining 157 restaurants to collect children's menus (if available). We asked staff to clarify beverage and/or side options that were not clearly described on menus. Subsequently, we eliminated establishments such as coffee shops and restaurants going out of business. The final list included 135 "eligible" restaurants, 85 of which had menus for children (Figure 4).

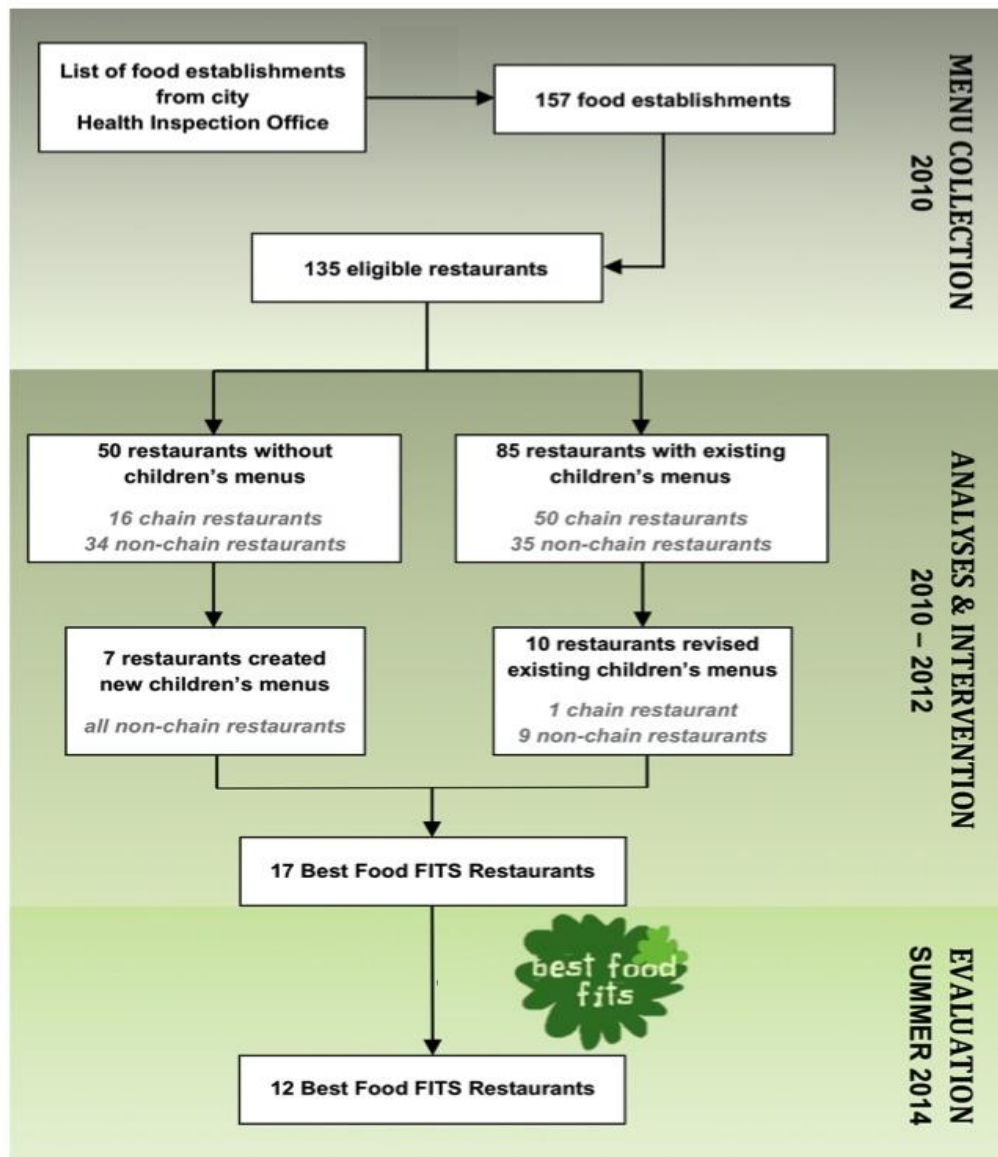


Figure 4. Flow Diagram and Timeline of Best Food FITS Intervention.

Three registered dietitians reviewed the 85 menus and classified all menu items. In general, we classified items as follows: beverages as “SSB” (e.g. sodas, flavored milk, specialty drinks), “non-nutritive” (diet sodas, unsweetened tea), or “healthy” (e.g. milk, 100% juice); entrées as “fried/cheesy/greasy/fatty” or “healthy” depending on content and preparation; sides as “fried/fatty/starchy” or “healthy” vegetables or as “fruit”; and desserts as “healthy” if fruit was the dessert, otherwise “unhealthy” (Table 1). Children’s

menus were also scored using the Children’s Menu Assessment system developed by Krukowski et al., which scores 21 items, such as availability of healthy entrées, free refills on SSB, healthy fruit/vegetable offerings, and the practice of brand marketing on menus (38).

Table 1. Detailed Menu Item Categorization used for Children’s Menu Analyses in San Marcos, Texas, 2011

Menu Category^a	Items^b
Entrées	
Healthful Entrées	Grilled, baked, or lean meats
	Non-fatty salads
	Vegetable platters
Fried/Cheesy/Greasy/Fatty Entrées	Any fried foods Macaroni and cheese Alfredo or cream sauce Creamy or cheesy soups Chicken nuggets, tenders, or strips Corn dogs Pizzas Grilled cheese sandwiches Burritos/Chimichangas/Enchiladas/ Quesadillas Tamales/Chalupas
Fruits	
Healthful Fruits	Fruit cups Fruit salads Apple slices Applesauce Mandarin oranges Pineapple slices Bananas
Sweetened or Fried Fruits	Fried apples Fried/tempura bananas Cinnamon apples
Vegetables	
Healthful Vegetables	Raw vegetables Steamed vegetables Salads (side, green, house salads)

Table 1 Continued.

Fried/Fatty Vegetables	French fries Sweet potato fries Steak fries Tater tots Fatty salads Onion rings Fried okra Coleslaw Caesar salad
Starchy Vegetables	Corn kernels or corn on the cob Mashed potatoes Roasted potatoes Baked potatoes
Other Sides	
Legumes	Pinto beans Black beans Chickpeas/hummus Black-eyed peas
Miscellaneous sides	Breads Sauces Rice Chili Dumplings Yogurt Cheese
Fried/Cheesy/Greasy/Fatty Sides	Macaroni and cheese French fries with cheese Chips Fried rice
Desserts	
Healthful	Unsweetened/process fruits
Sweetened or fried desserts	Cookies Cakes Cupcakes Cheesecake Milkshakes/malts Ice cream Fried ice cream Kolaches Fried fruit Fruit cobblers Bananas foster
Beverages	
SSB: Sodas	All soft-drinks sweetened with sugar

Table 1 Continued.

SSB: Non-Soda	Flavored milks Sweetened/flavored teas (raspberry, blackberry) Sports drinks Lemonades, limeades Slushes Fruit punch, fruit drink Smoothies (with added sweetener) Hot chocolate
Nutritive	Milk Non-dairy milks 100% Juice Smoothies (with no added sweetener)

Abbreviations: SSB, sugar-sweetened beverages.

^a Categorization methodology similar to that used in (38).

^b All menu items appeared on children's menus in San Marcos restaurants.

The Intervention: Changing Children's Menus

Researchers worked in teams of 2 to engage restaurant owners or managers. Attempts were made to schedule a 20-30 minute meeting with each of the 135 eligible restaurants by calling up to 15 times or by visiting restaurants if calls were unsuccessful. Once a meeting was scheduled, researchers sequentially: 1) described the project; 2) obtained informed consent; 3) administered a brief survey asking about the use of children's menus and the manager/owner's thoughts about children's menus; 4) explained the health impact of child obesity using a handout/illustration; and 5) asked for restaurant participation to improve existing children's menus or to develop new menus meeting Best Food FITS guidelines.

Restaurants were invited to participate at three levels: gold, silver or bronze. The gold level menus were required to have at least 3 fruit/vegetable options, and most entrées had

to be “healthy”. Other levels could have fewer servings of produce, but all levels required omission of SSB from menus. Incentives to participate included free advertising through the Best Food FITS website and via coalition members, social media, television, newspaper, and radio interviews.

The research teams worked iteratively with owners/managers to either revise existing menus or develop new children’s menus. This process began with a meeting to develop a hand-written draft menu based on owner/manager preferences, usually leveraging items already present on existing children’s or adult menus. After the meeting, researchers created a colorful menu using Microsoft PowerPoint, shared the menu with the owner/manager in person or via email, and modified as needed. We provided laminated or paper copies of the final, approved menus as requested by the owner/manager. Once menus were in place, participating restaurants were asked to display a Best Food FITS decal at the restaurant entrance. We provided restaurants table tents, give-away T-shirts, coloring placemats, bibs, cups, and reusable grocery bags with the Best Food FITS logo and graphics for them to promote the program to patrons. We frequently contacted participating restaurants to provide support and to adjust the new children’s menus upon request.

Assessment

We used several methods to assess achievement of outcomes. Coalition outcomes were assessed qualitatively. A quick assessment of the restaurant intervention included a simple count of the restaurants that agreed to offer Best Food FITS menus. A quantitative

assessment included independent-samples t-tests (IBM SPSS, Version 22) comparing pre-intervention menus and Best Food FITS menus, including counts of targeted menu items (e.g. SSB, fruits and vegetables, healthy entrées), menu costs, and Children's Menu Assessment scores. We visited the restaurants 2 years later (in 2014) to assess whether Best Food FITS menus were still in use. We also asked staff in participating restaurants to administer a patron survey to customers with children who received Best Food FITS menus; staff in 4 restaurants agreed. The 10-question patron survey, adapted from a non-chain restaurant intervention survey (39), asked whether customers noticed the Best Food FITS decal upon entering the restaurant, noticed the Best Food FITS options when ordering, and asked to what extent customers' ordering decisions were influenced by healthful options on the menu.

Outcome

Best Food FITS Coalition and Brand

The coalition meetings with area stakeholders along with collaboration with restaurants have helped cultivate community recognition for Best Food FITS. At community activities such as health and wellness fairs, we continue to host a booth in which we advertise our purpose, engage participants in an interactive SSB demonstration, and distribute promotional items such as bumper stickers, T-shirts, and reusable grocery bags. Adults and children alike especially enjoy T-shirts depicting 'Broccolicious' (character shown in Figure 3). Pictures of people wearing the T-shirt can be found on our Facebook page (<https://www.facebook.com/groups/121423094574163/>). It appears that the Best

Food FITS logo and graphics have been important contributors to our community presence.

Another piece of our community engagement included collaboration with the San Marcos Housing Authority. During the funding period, we used grant funds to install 4 working kitchens in a new adult learning center at Chapultepec Homes. This site is part of The Family Self-Sufficiency Program, a national housing program aimed at promoting employment and improving the resources of low-income families. The Best Food FITS logo is included in the permanent signage for the center. We use the learning center to engage local residents in community nutrition and hands on cooking classes that emphasize fruits and vegetables. We have ensured the sustainability of this collaboration by incorporating class delivery into the university nutrition and foods undergraduate curriculum. A further testament to our community presence includes the decision of a local philanthropic group to award Best Food FITS seed money in 2012 to expand the program to promote healthy food environments in local childcare centers and to work with parents of children in childcare to improve home food environments. The Best Food FITS childcare and parent initiatives were conducted in 2013-2014. Additionally, Best Food FITS was recently invited to become a member of the San Marcos Healthy City Task Force, a city organization aiming to promote community health.

Best Food FITS Restaurant Initiative

The majority of pre-intervention restaurants in San Marcos that serve children offered typical American staples such as fast food, pizza, sandwiches, barbeque and steak; in

addition, 17% offer Mexican food exclusively. Notably, pre-intervention children's menus offered an average of 8 varieties of SSB and 3 "fried/cheesy/greasy/fatty" entrées (Table 2). French fries were an automatic side on 44% of menus.

Table 2. Comparison of Children's Menus in San Marcos, Texas, before and after the Best Food FITS Intervention, 2010-2014

	Restaurants Before Intervention (N=85) N (%)^a	Best Food FITS Restaurants (N=17) N (%)^a	
Restaurant Type^b			
Fast Food	28 (32.9)	0	
Sandwich/Deli	8 (14.0)	0	
Pizza	2 (3.5)	0	
Mexican or Tex-Mex	15 (26.3)	9 (52.9)	
American	22 (38.6)	4 (23.5)	
Asian	4 (7.0)	2 (11.8)	
BBQ/Burger (non-chain)	3 (5.3)	1 (5.9)	
Italian	3 (5.3)	0	
Other (Greek)	0	1 (5.9)	
Menu Options			
	Mean N (SD)	Mean N (SD)	P value^c
No. SSB Options			
Sodas	4.49 (2.06)	0.00 (0.00)	< .001
Other SSB (Flavored Milks, Specialty Drinks)	3.68 (3.70)	0.00 (0.00)	< .001
Total	8.17 (4.04)	0.00 (0.00)	< .001
No. Entrées			
Fried/Cheesy/Greasy/Fatty Entrées	3.08 (2.27)	0.24 (0.66)	.036
Healthy Entrées	2.02 (1.71)	4.12 (1.90)	< .001
No. Side Dishes			
Fried/Cheesy/Greasy ^d	2.04 (1.60)	1.18 (0.95)	< .001
Fruit Sides	0.42 (0.66)	1.35 (1.06)	.003
Fried/Fatty/Starchy Vegetable Sides	1.21 (1.13)	0.06 (0.24)	< .001
Healthy Vegetable Sides	1.08 (1.90)	3.24 (1.64)	< .001

Table 2 Continued.

Meal Cost			
Average Cost of Children's Meal	\$4.07 (0.90)	\$4.53 (1.83)	.41
Children's Menu Assessment Score^c			
Total Score	1.85 (2.76)	8.53 (2.12)	< .001

Abbreviations: Best Food FITS, Best Food for Families, Infants and Toddlers; SD, standard deviation; SSB, sugar sweetened beverages.

^a Percentages may not sum to 100% because of rounding.

^b Restaurant classification based on Children's Menu Assessment (38).

^c Independent-samples t-test was conducted to compare averages for non-participating and Best Food FITS restaurants; based on the Bonferroni correction, differences between means were considered to be significant if *P* value was <.0045 (48).

^d Sides made of grains or starchy vegetables with fat (e.g. macaroni and cheese, French fries).

^e Children's Menu Assessment total scores can range from -5 – 21 (38).

Of the 135 eligible restaurants that we approached, 7 restaurants agreed to create new children's menus and 10 volunteered to revise existing menus, yielding a total of 17 restaurants implementing Best Food FITS children's menus in 2012 (Figure 4). With one exception, all participating restaurants were local and had control of their own menu. A sample menu changed through the Best Food FITS intervention is included in Figure 3. During follow-up assessments in 2014, 12 restaurants were still using the menus. Reasons for attrition from the program included restaurant closures and disinterest.

Not surprisingly, compared to pre-intervention menus, Best Food FITS menus offered items that were significantly healthier in the food and beverage categories that were assessed (Table 2). Also, the average Children's Menu Assessment score for Best Food FITS menus was significantly higher than for pre-intervention menus (Table 2). Although we were initially surprised that the average cost of a kid's meal on the new menus was not significantly higher than that of pre-intervention menus, an assessment of the cost of entrées in full-service chain restaurants in Little Rock, Arkansas, also revealed that more healthful entrées on children's menus were not more expensive than less healthful entrées

(48). Analysis of 35 patron surveys revealed that over 25% of respondents were aware of the Best Food FITS decal in the window/entryway upon arriving at the restaurant; almost 50% noticed the Best Food FITS options on the children's menu, and; 51% reported that nutrition was a very important factor when deciding their food choices.

Gathering input from owners/managers provided some insight regarding management's perspectives about changing menus (Table 3). For example, of the 61 respondents, about a third agreed that SSB were the most profitable item on the menu, and 15% said they did not stock fruits and vegetables, suggesting significant barriers to improving menus. On the other hand, the majority agreed that SSB were 'bad' for health, and also agreed that restaurants should serve healthful foods and provide alternatives to SSB.

Table 3. Perspectives of 61 Restaurant Owners/Managers Regarding Children's Menus Prior to the Best Food FITS Intervention, San Marcos, Texas, 2011

Survey Question	Yes	No	Neutral/NA
	N (%)^a	N (%)^a	N (%)^a
Restaurant Practices and Capacity			
Are there barriers to removing SSB from your children's menus?	10 (16.4)	27 (44.3)	24 (39.3)
Are SSB the most profitable item on your menu?	19 (31.7)	39 (65.1)	2 (3.3)
Does your restaurant currently stock fruits and vegetables?	52 (85.2)	9 (14.8)	0
Do you feel there would be problems adding any (or more) fruits and vegetables to your menu?	15 (24.6)	41 (67.2)	5 (8.2)

Table 3 Continued.

Is there not enough kitchen space (to store more fruits and vegetables)?	8 (13.1)	50 (81.9)	3 (4.9)
Is there not enough refrigeration/freezer space (to store more fruits and vegetables)?	15 (25.6)	41 (67.2)	5 (8.2)
Is your establishment a chain restaurant?	24 (39.3)	37 (60.7)	0
Health Opinions and Conjectures			
Are SSB “bad” [for health]?	50 (81.9)	10 (16.4)	1 (1.6)
Should restaurants provide alternatives to SSB?	59 (96.7)	2 (3.3)	0
Should restaurants provide healthy foods?	52 (85.2)	9 (14.8)	0
Is it important for restaurants to serve healthy foods?	54 (88.5)	7 (11.5)	0
Is it important to your customers to have healthy foods?	46 (75.5)	14 (23.0)	1 (1.6)
Have your customers previously demanded healthy foods?	35 (57.4)	25 (41.0)	1 (1.6)
Have you previously tried to make healthy changes in your restaurant?	33 (54.1)	26 (42.6)	2 (3.3)
Do you feel confident in choosing healthy foods?	52 (85.2)	0	9 (14.8)

Abbreviations: Best Food FITS, Best Food for Families, Infants and Toddlers; NA, not applicable; SSB, sugar sweetened beverages.

^a Percentages may not sum to 100% because of rounding.

In the process of conducting this intervention, we learned a great deal about trying to persuade restaurant owners/managers to voluntarily change their menus. The most important lesson was to be patient and persistent because there were many establishments that never answered their phones or returned our messages. Our ‘work around’ strategy was to have teams visit the non-responsive restaurants frequently during the afternoon to try to establish contact with the owners/managers. In a few cases, a surprise encounter converted an elusive owner into an enthusiastic participant. Once contact was made, we learned that it was important to take time to build on the relationship. Enthusiastic undergraduate and graduate university student research teams frequented restaurant establishments, often eating meals with owners and devoting time to establishing genuine rapport. During the menu development process, Best Food FITS teams worked iteratively with owners/managers to create a suitable, individualized menu for each establishment. We learned that owners/managers were more open to change if new menus included items already available on the restaurants’ menus. It is likely that this strategy contributed to the cost neutrality of the menu changes. Importantly, we learned not to assume we could predict which restaurants would participate. For example, while we expected and were gratified to engage some of the landmark local restaurants that are frequented by university faculty and staff, we were surprised and delighted with our success in recruiting many smaller, Mexican food restaurants. In fact, approximately half of the original participating Best Food FITS restaurants were from these neighborhood establishments. Based on the popularity of Broccolicious T-shirts and other branded give-away items, we feel that giving these items as incentives to restaurant owners/managers may have contributed to recruitment success. Finally, having the owner of a prominent

local restaurant as a member of the coalition set a positive tone for the overall experience. He hosted coalition meetings in his restaurant and was the first to become a Best Food FITS restaurant. Towards the end of the intervention we honored him with a leadership award during a coalition meeting.

We encountered several challenges along the way. First and foremost, it was easy to get frustrated when restaurant staff avoided our initial overtures. In addition, with the exception of 1 chain restaurant, all corporately owned establishments were either unresponsive or unwilling to participate in intervention efforts. Through direct communication or through the owner/manager survey, we learned that for some restaurants, SSB were important drivers of revenue and that their removal would pose a financial burden. Best Food FITS developed a ‘work around’ by requiring that while SSB could not appear on children’s menus, participating restaurants could still offer them on adult menus. This compromise appealed to many owners. Our strategy was also adopted by the Por Vida! initiative in San Antonio (35).

Interpretation

Best Food FITS is now a recognized brand in San Marcos, TX. Despite a few challenges, including the absence of a city restaurant association, many local restaurant owners/managers proved to be valuable partners in improving their default children’s menus. Their participation demonstrated concern for their community and for the children who live in it. The approach described in this case study can easily be adapted to other communities. While seed money is needed to generate promotional items, the actual

menu development can be done through nutrition programs in universities or in collaboration with local hospital dietitians. Improving the default menu options, such as including fruit and vegetable sides, can be an important step in changing restaurant norms and build a less obesogenic community for children.

APPENDIX SECTION

1. Initial Contact Script - Scheduling Follow-Up Survey
2. Restaurant Survey - Follow Up Assessment



1. Initial Contact Script: Scheduling Follow-Up Survey

Introduction:

Hello, my name is _____. I'm calling from the Nutrition Program at Texas State University. I am a student working on a project called "Best Food FITS" funded by the State of Texas. Can I please speak with either the owner or a manager?

If manager is **UNAVAILABLE**:

- When would be a convenient day and time to reach the owner or a manager? **(record in contact log)**
- Can you please tell me the best number to call? **(record in contact log)**

If they offer **VOICE MAIL**, leave this message:

- Hello, my name is _____. I'm calling from the Nutrition Program at Texas State University. I'm a student working on a project called "Best Food FITS" that your restaurant participated in. We are collecting follow-up data from our original study and would like to include your restaurant. I will call back at a later time and discuss more details with you. Thank you for your time and I look forward to talking with you. Goodbye.

If manager is **AVAILABLE** (and you are speaking to a manager):

- Hello, my name is _____. I'm calling from the Nutrition Program at Texas State University. I'm a student working on follow-up data for the "Best Food FITS" project that your restaurant participated in. We are re-contacting our original participating restaurants to collect follow-up data for our study.
- Are you the best person to talk to about this project? **(if not, ask to speak with the correct person and redo spiel)**
- Do you have a few minutes to speak with me?

If **NO**, ask:

- When would be a convenient day and time to call back? **(record in contact log)**
- What would be the best number to call? **(record in contact log)**

If **YES**, say:

- Great, thanks for your time!
- We want to distribute follow-up surveys to your restaurant patrons asking about the Best Food FITS children's menus. These are anonymous, 10-question surveys that can be distributed with every child's menu and left in a collection box that will be provided to you. We are asking that

they be distributed and collected for two weeks, upon which I will come and take the survey collection box from your establishment.

If NO:

- Thank you for your time. Goodbye.

If YES:

- When would be a convenient time to begin these surveys? **(record in contact log and checklist)**
- Do you have any questions? **(Answer any questions they have using the question guide. Do not give away the study objectives.)**
- Is this the best number to reach you? **(record in contact log)**
- Thank you so much for your help! I look forward to meeting you. Goodbye!

If UNSURE:

- We could really use your support.
- Do you have any questions or concerns about the surveys?
- Would you like me to call back at a later time after you have time to decide?
- When would be a convenient time to call back? **(record in contact log)**
- Is this the best number to reach you? **(record in contact log)**
- Thank you for your consideration. I look forward to hearing from you. Goodbye.



2. Best Food FITS Restaurant Survey Follow-Up Assessment

Restaurant: _____ Date: _____

- Thank you for taking the time to complete our survey.
- Your thoughts are important and we would like you to respond to the statements and questions with your personal opinions and observations. Please do not place your name on the survey.
- It is important to answer completely and honestly and know there are no right or wrong answers.
- Your answers will be completely confidential.

Please answer the following:

1. As you came into the restaurant, did you notice the *Best Food FITS* sign in the window/entry about healthy children options offered here?

___ Yes
___ No

2. Before ordering, did you notice the *Best Food FITS* options on the children's menu indicating available healthy options?

___ Yes
___ No

3. If you did notice the sign or the menu with available healthy options, how much did it affect your decision about your food order today?

___ Not at all
___ Somewhat
___ A lot

4. How often do you eat outside the home with your child(ren)?

5. What is your race?

___ Hispanic/Latino/Spanish Descent
___ White/Non-Hispanic
___ Black or African American
___ Native Indian or Alaskan Native
___ Asian or other Pacific Islander

6. What is your sex?

___ Male
___ Female

7. What is your age?

___ Under 18
___ 18-35
___ 36-50
___ 51-70
___ 71 and over

8. How many children do you have?

9. How important is each of these to you when deciding on what foods to buy? (circle one per row)

a. Taste	Not Important	Somewhat Important	Very Important
b. Cost	Not Important	Somewhat Important	Very Important
c. Nutrition	Not Important	Somewhat Important	Very Important

10. Please add any additional comments about the Best Food FITS program:

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